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A Novel of the Atomic Age

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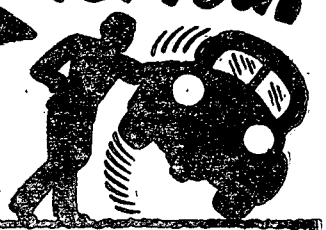

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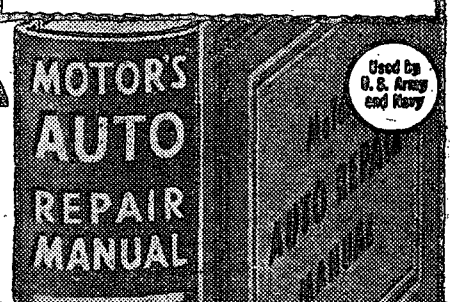

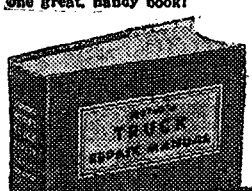

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Vol. 15, No. 1 — A THRILLING PUBLICATION — March, 1947

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Oona, wife of the future, wearies of her husband's lethargy

STELLAR SNOWBALL ..... John Barrett 88
A girl stowaway and a pirate keep things humming on the Cyrex

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Cover Painting by Rudolph Belarski—Illustrating "The Laws of Chance"

STARTLING STORIES, published every other month by Better Publications, Inc., N. L. Pines, President, at 4600 Diversey Ave., Chicago 39, Ill. Editorial and executive offices, 10 East 40th St., New York 16, N. Y. Entered as second class matter September 29, 1938, at the post office at Chicago, Illinois, under the act of March 3, 1879. Copyright, 1947, by Better Publications, Inc. Subscription (12 issues), $1.80; single copies, $.15; foreign and Canadian postage extra. In corresponding with this magazine please include your postal zone number, if any. Manuscripts will not be returned unless accompanied by self-addressed stamped envelope and are submitted at the author's risk. Names of all characters used in stories and semi-fiction articles are fictitious. If the name of a living person or existing institution is used, it is a coincidence.

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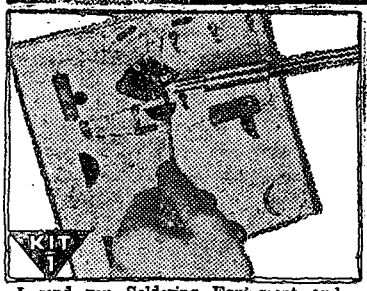
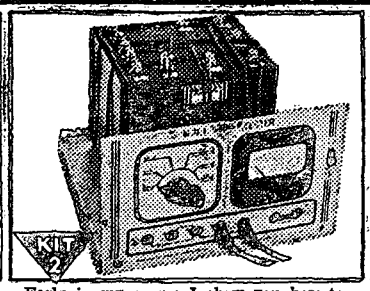
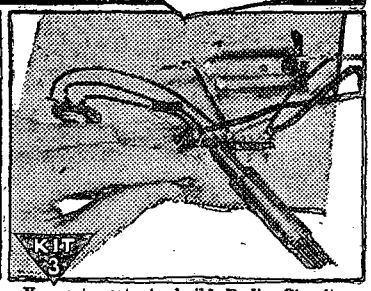


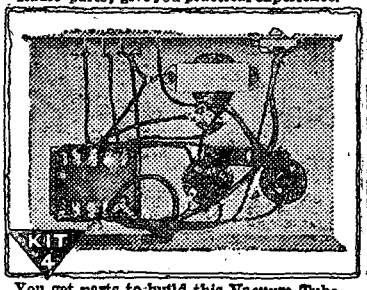
I send you Soldering Equipment and Radio Parts; show you how to do Radio soldering; how to mount and connect Radio parts; *give you practical experience.*



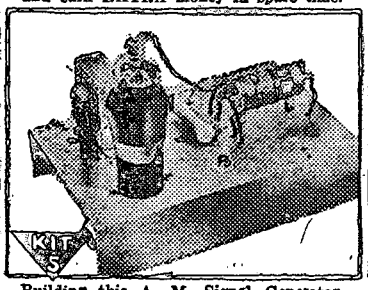
Early in my course I show you how to build this N.R.I. Tester with parts I send. It soon helps you fix neighborhood Radios and *earn EXTRA money in spare time.*



You get parts to build Radio Circuits; then test them; see how they work; learn how to design special circuits; how to *locate and repair circuit defects.*



You get parts to build this Vacuum Tube Power Pack; make changes which give you experience with packs of many kinds; learn to correct power pack troubles.



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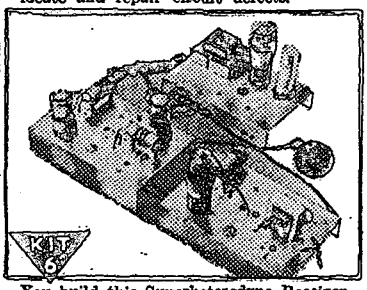

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IN THE not-so-distant future, the big 200-inch telescope will be in operation atop Mount Palomar in California, bringing such Systemic neighbors as Mars and Venus and Mercury under closer scrutiny than ever before and putting the moon scarcely further away than the average cirrus cloud layer.

Therefore it seems probable that, if any form of what humanity can recognize as life exists or has existed and left monuments behind it on any planets excepting our own, we shall find soon some indication of it. At least we may know whether the canals of Mars are canals or what-all and, perhaps, whether they are of artificial creation.

Thus one of the great dreams of all pseudo and real science fanatics may well be approaching fulfillment. And if the big 200-inch telescope at Mount Palomar fails to bring the planets sufficiently close for the answer, then some other development of modern science should not be long in so doing.

Conquest of at least limited space, directly by projectile or indirectly by lens, is indeed close upon us.

All of which may shortly eliminate one of the major problems that has confronted the author of interplanetary stories since the earliest days of such writing—or at any rate from the Laputs of Jonathan Swift, the irascible dean of Dublin University.

Lacking any yardstick of actuality, he has been forced to create life upon alien planets in a mold intelligible to humanity. Swift, for instance, kept his Laputans human, if highly eccentric. Only in his horses of the final Gulliver story, the *houyymmnns* and the repulsive *yahoos*, did he essay a step out of conventional human frame, and here he gave his quadrupeds unmistakable traits of *homo sapiens*.

Jules Verne stuck to people, no matter where he took them. His trip to the center of the Earth, his journey on the comet, his Captain Nemo, all involved people cut in two-dimensional cartoon shapes. Bulwer-Lytton, on the other hand, dealt more in psychic forces but recognizable as stemming directly from human ghost legends and the like.

In his "War of the Worlds" H. G. Wells first attempted the creation of alien invaders—but he made them recognizable in human terms by fitting them out with the bodies of giant squids and with temperaments to match. So these, again, cannot really be termed utterly alien.

Edgar Rice Burroughs, in his John Carter yarns, stuck to humanity and to mutations on a level which has little variation from that achieved by the authors of Flash Gordon and Brick Bradford in the current comic strips. And Murray Leinster in not-so-far-back THRILLING WONDER STORIES created an octopus viewing an alien bathospheric humanity in the memorable "De Profundis"—but viewing it with emotions that were very human if very well disguised.

It is only when confronted by life as alien as insects that our authors achieve their purpose. And the insect life of the average back yard or apartment—insecticides to the contrary—is ample enough to afford them plenty of concrete examples.

So it seems probable that our authors will not achieve their aims at representing existence on an extra-human plane until they are confronted with the same in measurable actuality. And the big 'scope atop Mount Palomar represents another great stride toward realization of this actuality. It should be plenty interesting.

OUR NEXT ISSUE

THE novel which is to lead the May issue of STARTLING STORIES is one that Henry Kuttner addicts (as who isn't?) will not only welcome with cries of delight, but will cherish long after the final page is turned.

(Continued on page 8)

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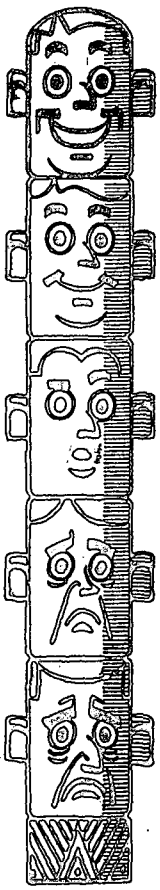

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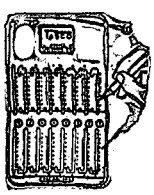

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The Ether Vibrates

(Continued from page 6)

LANDS OF THE EARTHQUAKE is Kuttner at his very best—with scientific trickery and brilliantly ingenious fantasy blended so adroitly that devotees of both schools of imaginative fiction will be happily trapped. LANDS OF THE EARTHQUAKE is, we feel certain, due to take its place in the little gallery of classics to which so few additions are ever made.

It is, in effect, the story of William Boyce, New York citizen of today who finds himself in front of the Public Library with exactly one year missing from his memory. And, seeking the year he has lost and a something else that is very dear to him and just eludes the frantic fingers of his brain, he is led to the cellar of a house by the East River, an old house which is oddly familiar, where the strange stone that he finds in his pocket opens a gateway into a land of sorcery.

By his very arrival in this strange country of inverted time—where cities drift eternally over cloudlike seas and time itself remains curiously static—he sets immutable forces in motion, forces which involve him and the object of his search, and the peoples of two ancient cities, in deadly conflict.

To tell more now would be to dull the surprises in store for readers of LANDS OF THE EARTHQUAKE, but rest assured that they are many and truly surprising. LANDS OF THE EARTHQUAKE is the sort of novel on which the editors of STARTLING STORIES have set their sights from the very first issue and which they rejoice in discovering and printing.

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(Continued on page 10)

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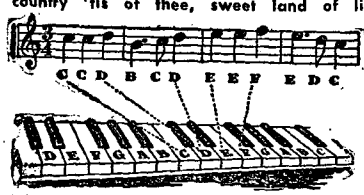

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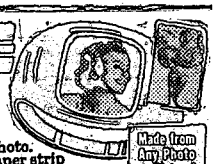

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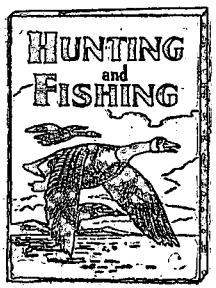

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The Ether Vibrates

(Continued from page 8)

sequel to WHEN PLANETS CLASHED, the Hall-of-Famer in the current issue, you'll want to follow its developments.

Also present will be a group of short stories culled from the best the field has to offer and, of course, one Sergeant Saturn, present as doyen of the MEET THE AUTHOR, FANZINE REVIEW and THE ETHER VIBRATES departments. It should constitute one of the best issues of SS ever to hit the stands!

IN PURSUANCE of a policy already in effect in THRILLING WONDER STORIES, our companion magazine, the Sarge is hereafter going to run more and briefer letters. So if you find your brain-child shorn of some of its juiciest prose, remember that its shearing was to permit someone else's b.c. to see even a modicum of light. The tremendous increase in volume of mail received is the cause of this alteration. There wasn't any other fair way to handle them.

The first letter received this time out, however, offered no problem of cutting. We herewith run it in toto—

BRIEFED IN BRIEF
by G. J. Phillips

Dear Sir: Concerning the reform of your Reader's Columns—THANK GOD!!!—*Ste. 2 Yaeger Bld., Brandon, Manitoba, Canada.*

Why not thank us too—huh?

FAR CRY
by George M. Lee

Dear Mr. Editor: The supply of Science Fiction and Fantasy magazines in Britain dried up shortly after the outbreak of war in 1939, so you can imagine my pleasure when I saw a copy of the summer STARTLING in a book-seller's window.

I really enjoyed *everything* in it, including ads, reader comments and, of course, the stories. It made me realize what I've been missing for the last seven years. If any of your readers has any old numbers to spare, would they care to send them my way? I'll start getting choosy in about twenty years.—*1 Buxton Avenue, Carlton, Nottingham, England.*

Here's hoping you get a good response to your plea, George. It's nice to know that

(Continued on page 94)

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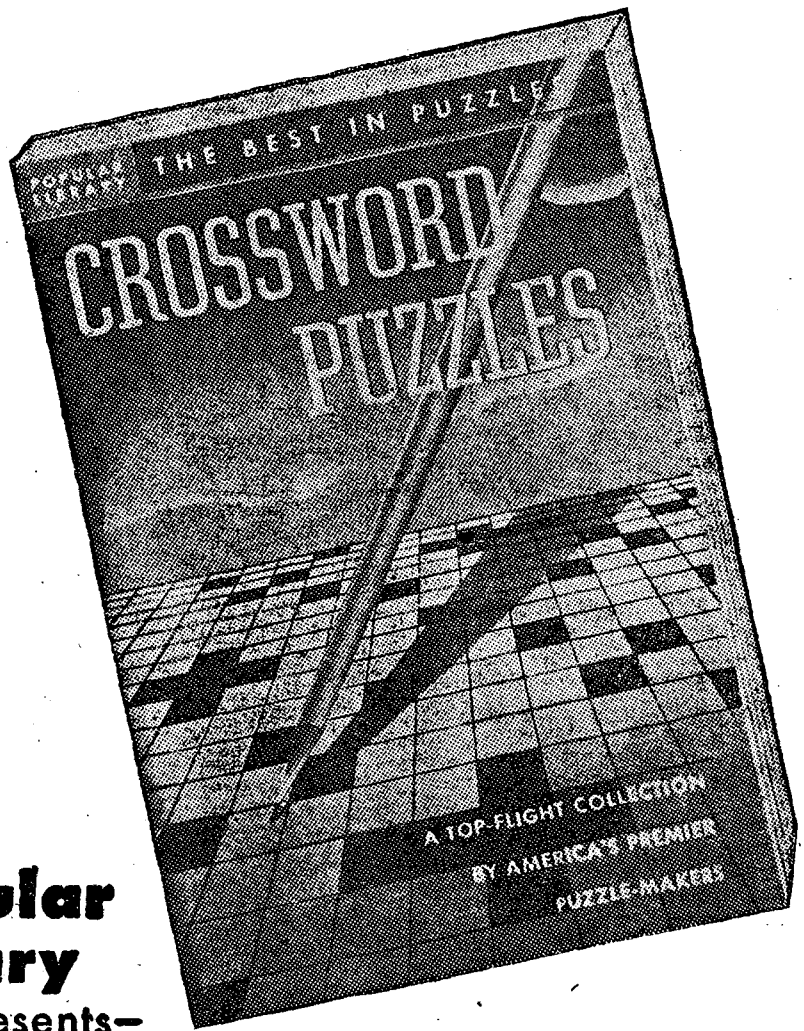

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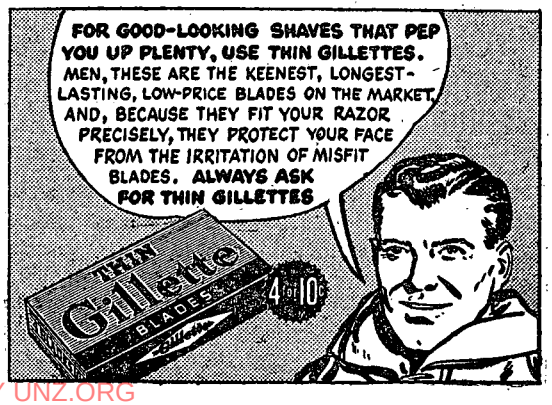
SAY, THIS BLADE'S A WONDER! I NEVER KNEW SHAVING COULD BE SO QUICK AND EASY!
THAT'S A THIN GILLETTE AND IT'S SEEN PLENTY OF USE, TOO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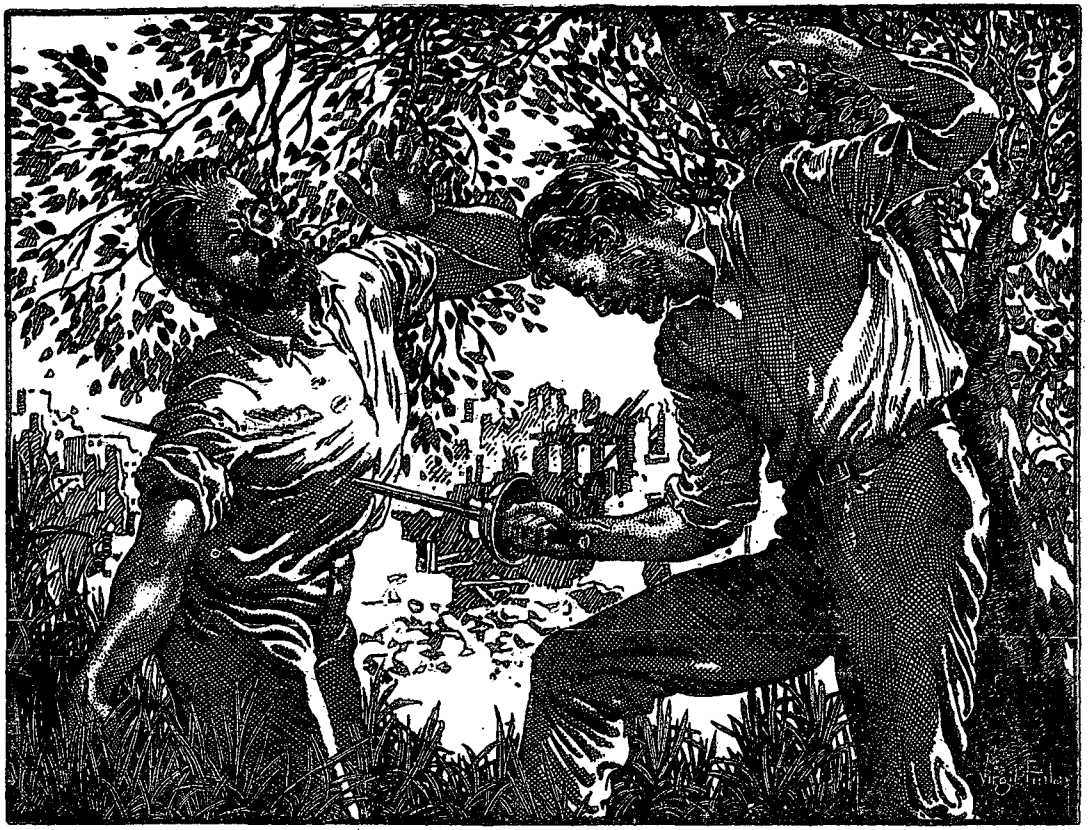

Steve brought up the foil just as the man emitted a bellow and charged, running straight into the point (CHAPTER I)

THE LAWS OF CHANCE

By MURRAY LEINSTER

Survivors in a bomb-blasted land, Steve Sims and "Lucky" Connors alone possess the miracle mineral that can lead America to victory in the strangest, deadliest of wars!

CHAPTER I

Amid Debris

STEVE SIMS, former Professor of Physics at Thomas University, delicately pushed aside a brushy tree-branch and looked down to where the little town had been. It wasn't there any longer. But there wasn't a single monstrous atomic-bomb crater, as he might have expected. Half a dozen relatively small craters—no more than two to three hundred feet across—had obliterated a third of the town entirely and flattened all the rest. Then there'd been a fire. There was nothing left.

He regarded it without shock, but with a grim regret. This had been his home town. He'd spent a long time making his way to it from the vicinity of Thomas University,

A NOVEL OF THE ATOMIC AGE

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after there was no longer any hope there. He'd waited nearly four months, in the rapidly-appearing waste-land on the edge of the campus, hoping against hope for someone like himself to turn up able to help him on the work he still believed might partly repair the world catastrophe.

After there was no more chance there, it had taken him three months to get here—four hundred miles. There'd been interludes, of course. Once he stopped and joined a group who called themselves guerillas. Before he left them he'd killed a man in cold blood, an act he still remembered with satisfaction.

Then he'd had to hide from his late companions, and then he'd stayed on at a tiny community where the people were uninformed but resolute—too resolute entirely—and now he'd reached his home town and it was waste.

"Let's go out and cut our throats," said young ex-professor Sims to no one in particular.

It was a quotation, and he grimaced wryly to himself. He squatted down to watch the area of blackened debris which had been the scene of his childhood.

Since the bombs began to fall, like everybody else he'd learned that it didn't pay to take things for granted, or to be unduly brave, or to frank about yourself, or anything which had been normal and excusable as little as a year ago. So Steve—no longer professor because there weren't any colleges or students left—Steve Sims squatted close to the trunk of a tree and attentively regarded the ruins of his home town.

It was utterly dead and completely uninhabitable. It must have been destroyed a long time ago, because green things were already growing between the fire-blackened timbers where the town was merely flattened and burned out.

There was a greenish scum on the ponds at the bottoms of the bomb-craters, too, which proved that this was a high-explosive job, not atomic. And that proved that They—the people with bombs and planes—hadn't an unlimited supply of the atomic bombs which melted the surface of the ground to a sort of crackled, glassy substance, which was highly radioactive.

Nothing like that was visible here. So if they used ordinary high explosives to flatten a small town, their stock of atomics was limited.

THAT was good. Steve recognized it as good, and then he wondered why he thought it was good. Whoever They were—and all of civilization had been smashed, and nobody knew who had started it—They couldn't be touched by people like Steve. The atomic war had degenerated into an indiscriminate, hysterical mass slaughter of everybody by everybody else.

Steve was a wanderer, like most of the people left alive. He was homeless, and his only possessions were a very small lady's automatic pistol, with only two clips of cartridges, a pair of fencing foils with the buttons broken off and the blades filed to needle-sharp points, one blanket—plasti-coated on one side so it was water-proof—six child's copy-books nearly filled with writing, and one-half of a roasted chicken. He'd stolen the chicken two days before.

"The obvious thing," he repeated presently, "is to go out and cut my throat. But—"

"Oh-oh!" he said then.

There was a movement in the debris. An infinitely cautious movement. For an instant he couldn't make it out, and then he saw a small figure crawl out from under an indescribable mess that looked like a heap of oversized black jackstraws. The figure looked about in a hunted manner, seemed to listen fearfully, and then came scrambling over the wreckage in Steve's general direction. It moved with frenzied haste.

Steve watched, immobile. When somebody ran away, there was usually somebody else after them. It was not the business of a mere Wanderer to interfere. Especially, perhaps, not the business of a former professor of physics with six child's copybooks full of a partly written treatise on "The Paradox of Indeterminacy." But the discovery of his home town in ruins had pretty well removed that last reason for non-interference.

Still, he watched without any movement. The small figure scrambled over a tumbled heap of bricks. Something loose rolled down and other shattered stuff followed. There was a miniature landslide and a cloud of white dust arose.

"That's bad!" said Steve.

The figure raced on. It was very small and pantingly in haste. It seemed filled with desperation. But it was the only moving thing in sight except a lazily soaring buzzard, flying in tranquil circles in the sky.

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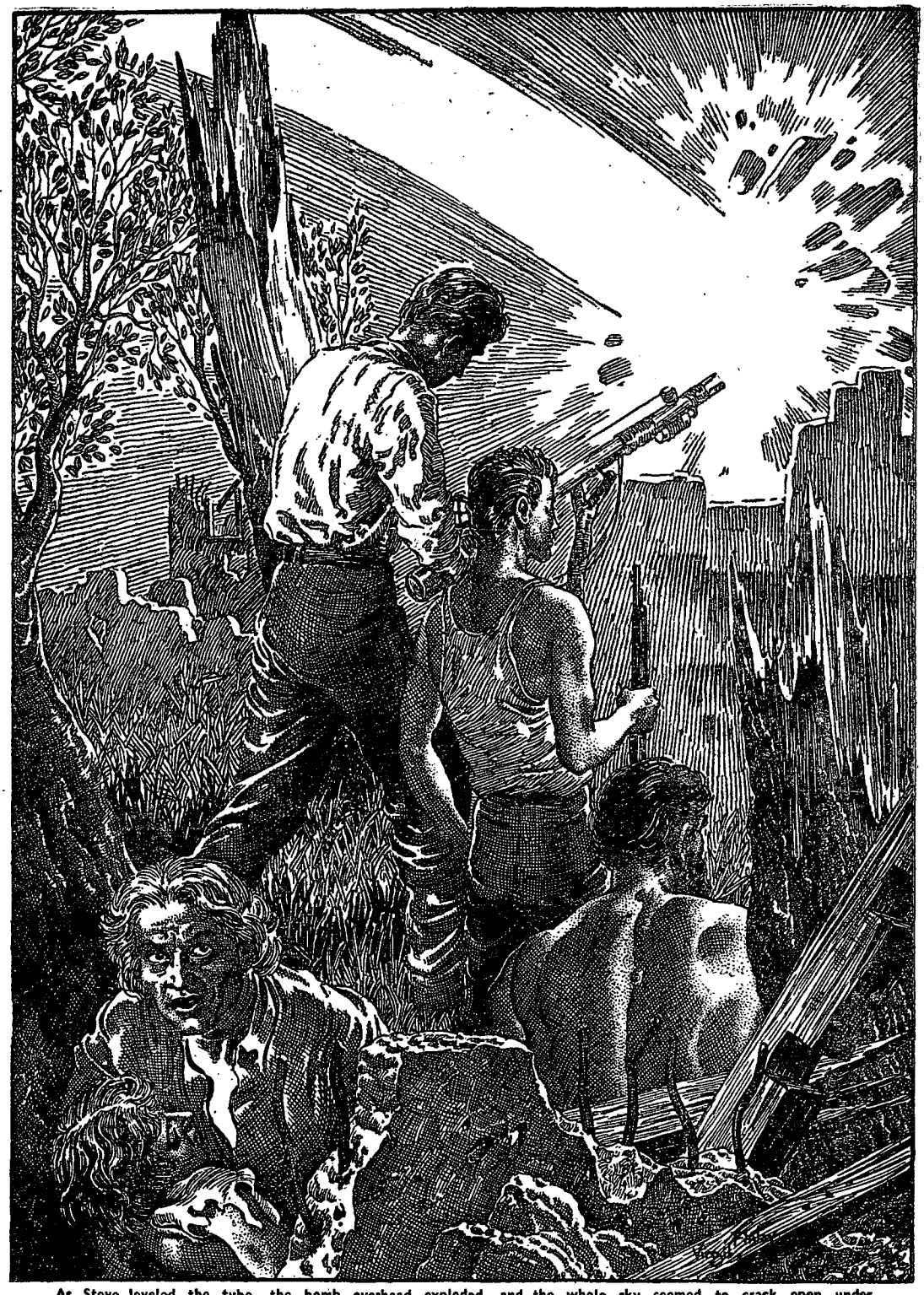

As Steve leveled the tube, the bomb overhead exploded, and the whole sky seemed to crack open under the force of the blast (CHAPTER XIV)

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Except for the buzzard it was the only moving thing in sight. Then another figure stirred. This one appeared in the shoulder-high weeds which grew everywhere over what had been cleared land around the edge of town. The second was a larger figure. It moved swiftly to cut off the smaller one.

Steve watched. It was none of his business. The world was in ruins. There was no law. There was no government. There was no hope. So he could see no reason for him to risk his life interfering between two unknown persons, one fleeing and one pursuing. But on the other hand there was no longer any special reason to be careful of his life.

The smaller figure gained. It came to what had been a street, where the blast of the nearest bomb had blown straight along its length. Trees had fallen, but there was little wreckage. For two hundred yards the running small figure fled without hindrance, unseen by its pursuer and not seeing him. Then it stumbled and fell headlong, and scrambled to its feet and fled again. But now long hair tumbled about its shoulders and streamed behind.

"The devil!" said Steve Sims, in disgust.

He rose smoothly to his feet, slid the pack from his back, and pulled out one of the fencing-foils. He ran lightly through the trees, vexed, arguing with himself that this sort of thing happened too often for him to be responsible, that he might have to use a highly precious cartridge, that he might get killed, and generally assuring himself that he was a fool.

It was almost a quarter-mile before he really saw either of the two figures again. Then he reached a spot where he could look through the trees again upon the town. Much had happened. The girl had discovered her pursuer. He was almost upon her. Somewhere and somehow she had snatched up a splintered bit of wood.

As Steve reached the woods' edge the man snarled and plunged to seize her. She flailed the stick around in a typically feminine desperate sweep, without accuracy and without real force. He flung up his arm and the stick broke against it. But then he roared and plucked blindly at his eyes while she gasped and darted for the wood, her wild tresses fluttering behind like yacht pennants billowing in the winds of a happier day.

BELLOWING, the man raced after her. He'd been dust-blinded only for a moment. She was barely ten yards before him when she dived between the first trees. There was utter horror upon her face when Steve appeared before her. But he jerked his thumb to one side.

"That way," he said sharply.

She swerved and fled like a desperate deer. Steve stepped into the line she'd swerved from. The pursuer, raging, plunged into the woods.

He saw Steve and roared again. He charged.

And Steve brought up the needle-sharp foil and he ran right upon it, up to the very hilt, so that there was a sickening impact against the hard guard. Steve simply stepped aside and let him crash to the ground. He did not move after he had fallen.

Some five minutes later, Steve cleaned the foil painstakingly. There had been tobacco in the dead man's pockets, and he'd had a rusty knife, and a flask of poisonously vile liquor. Also there were four diamond rings and a child's necklace. Somehow the child's necklace removed any distaste Steve might otherwise have felt for what he had done.

He straightened up and tossed aside the leaves on which he'd cleaned the foil. Then there was a faint stirring. The girl's voice came shakily, although she remained invisible.

"Th-thanks," she said.

"Don't mention it," said Steve. He paused, and added, "I split my loot. You may need this."

He tossed the knife from the dead man's pockets in her general direction. Leaves stirred. She came into view. She picked up the knife. She was smudged all over with the charcoal of the timbers in which she had hidden, but she was pretty. He regarded her detachedly. She wiped off her face with the sleeve of the man's coat she wore.

"Also, you might like these," said Steve. "He had them. I'm not a professional assassin and I don't like to take jewelry. Can you use them?"

He held out the rings and necklace. She searched his face with a hunted expression on her own.

"I'll put them down and walk away," he said drily. "Seriously, you might be able to use them for barter. People want odd things, these days."

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She took a deep breath and moved forward.

"N-no," she said, breathing fast. "I'm—not afraid of you. You—you did that." She looked down at the dead man and swallowed. "He was horrible! Have you anybody else with you?"

"I'm a lone wolf," Sims said. "No, I take part of that back. I'm not a wolf. Just alone. How about you? Friends? Is there some place you can go and be safe? I'll try to take you there if you like."

She swallowed again, and then shook her head. She looked at him appealingly. He weighed the situation. In the last seven months the ordinary, everyday world had crashed into small and mangled fragments.

For a man to stay alive alone was difficult enough. Also, there were the implications of that work on the "Paradox of Indeterminacy," which was either sheer nonsense or very much more important than the life or safety of any one girl, even though she looked as frightened or as desperately appealing as this one.

"I've got half a chicken, very badly roasted, about a quarter of a mile away," Steve said without warmth. "I can offer you part of it. In my wandering around I've found one or two communities that are hanging together after a fashion. I'll help you try to find one that will let you join them if you want me to. I'm afraid that's about all I can do, though."

She gasped:

"P-please!"

He did not like to see such gratitude for so problematic a benefit. He turned and walked away. After half a dozen paces he looked back, and she was following. She wiped her eyes with the sleeve of that man's absurd coat. He went on, scowling. Nobody knew who'd started the atomic war of which this girl, and he, and the dead man left casually back in the woods were all casualties, in common with most of the human race.

Nobody knew whether it was ended or not. There was civilization of a sort maintaining itself somewhere; that was certain. But what was really positive was that there was no hope for anything but a wandering, wild animal life for the few who survived and were not members of the small and embattled communities of farmers who fought ferociously to keep their own membership alive. Steve himself had not an ounce of fat left on him. The girl looked hungry.

He reached his pack and slipped it over his shoulders, and then let it slip down again. He took out the half-chicken and handed it to her. Her lips moved hungrily.

"You said this was all," she said.

"Half a chicken for you, and half for me," he said untruthfully. "Go on and eat it!"

With a sharp little intake of breath, she did. She was starving, but even so she did not gobble. In the months since the bombs began to fall, he'd seen a great many human beings deteriorate to the level of animals. She hadn't. He watched until she had devoured the last morsel of the half-chicken. She was still human. She smiled at him apologetically.

"I was greedy," she said ruefully, "but it was so good! What now?"

He debated. No supper for him. No shelter. A girl to look after, and the paradox of indeterminacy a completely hopeless effort since his home town was smashed and the only man who could have offered a fresh viewpoint, which he needed badly, was doubtlessly dead in its ruins.

"What's your name?" he asked mildly.

"Frances." She looked at him expectantly.

"Listen, Frances," he said detachedly. "What say we go out and cut our throats?"

CHAPTER II

Fugitive

AFTER it grew dark they talked quietly. Steve made a camp of sorts, a mile and a half from the place where he'd first seen Frances. Its basis was the trunk of a monster seed-tree that had crashed to earth in a thicket of its second-growth descendants. It meant a supply of rotted, punky wood which would make a flameless, smokeless fire, and the trunk was raised above the ground for part of its length so the fire could be built under it and be invisible from the sky.

On the way to that place the girl had spotted blackberry bushes and gathered a comforting supply. And after Steve had walled in one side of the tree-trunk with leafy branches, and drawn down his blanket over the other, they ate the blackberries, stumbled through the new-fallen darkness

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to a nearby brook and drank, and returned to the encampment.

"You can choose your half of the shelter, and fix your bunk of leaves," said Steve. "I'll take the other half and we'll have the fire between us instead of a sword. And a few leaves on the coals from time to time will keep insects away."

"You didn't tell the truth about the chicken," the girl said suddenly. "You let me eat it all!"

"I'm full of berries anyhow," Steve assured her. "If you want to go to sleep, go ahead. I'm going to write a little."

They were in the cramped and improbable shelter. Frances blinked at him in the absurd dim glow that came from the coals.

"Write?"

"A master-work," said Steve in conscious irony. "A treatise on the Paradox of Indeterminacy. It is possibly a triumph of logic and theoretic physics, but it is certainly the most futile thing that anybody ever worked his head off at."

He grinned mirthlessly at her across the glow from the smoldering rotted wood.

"In the old days alchemists were frequently thwarted by the fact that their chemicals wouldn't do what they wanted them to. So they talked of affinities and caloric and phlogistin and various other things that didn't exist. They were excuses. We modern physicists have been thwarted by the fact that our experiments didn't work as we wanted them to, either.

"When you get down to a few thousand atoms or electrons or whatnot, your experiments begin to go haywire. You can predict how a billion atoms or electrons will behave, but you can't know what a hundred will do.

"So we began to talk about indeterminacy. When you're working with such small numbers of objects that the laws of chance come into play, your results are governed by the laws of chance rather than the ordinary laws of physics. The result is indeterminacy. That's an excuse, too."

She listened to all this gravely. There was still a smudge on her cheek from the charcoal of the ruined town. She'd washed at the brook, but that hadn't come off. Steve went on with ironic detail:

"So I began to question the laws of chance. All the other physical laws we know explain how forces act. We can identify the forces—electric charges and the like. Maybe the laws of chance explain how forces act, too, but we've never identified any forces to fill the bill. I've worked up some clues. I've imagined and described some forces that would operate to make heads come up a thousand times in succession, if applied that way.

"But I haven't the least idea how they could be generated or detected, unless you consider that Rhine detected them in his psychokinetic experiments. I'm in the position of a man who had imagined electricity on theoretic grounds, but had never heard of it and didn't know how to generate or detect it. He just knew there must be such a thing and that if he could get hold of it he could go to town."

Then Steve shrugged.

"*Mmmmmm,* you could win at any card-game," the girl said. "You could make anything happen that was even faintly possible. Is that it?"

Steve jumped. He had talked with deliberate ironic intent, because the last man on earth he'd hoped, and that only faintly, could understand his reasoning and help him carry it farther was undoubtedly dead in the wreckage of the town two miles away.

The man in question had been a putterer and a visionary who was more or less responsible for the fact that Steve had been a professor of physics. The loss of the last hope of another mind to work with him had been a blow. But this girl hadn't listened blankly! She'd understood!

"My father'd have liked that idea," she added, after a moment. "He'd have loved it! He was killed when the town was bombed." She nodded calmly. "I was away then. I came back on foot because the gasoline had already given out. The town was gone when I got here."

STEVE blinked. Then, tentatively, he said a name. The girl stared at him.

"That was my father! You—"

"I'm Steve Sims," said Steve wryly. "Maybe you've heard of me. I know you now! You were twelve years old when I went off to college. How do you do?"

They looked at each other across the double-cupful of embers on which Steve put leaves, for smoke, every now and then. Then the girl's drawn look relaxed.

"This is—nice!" she said unsteadily. "Of course! You used to write to my father sometimes! It's like—it's like finding one's

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family again!"

She blinked to keep back tears, and impulsively reached over to grasp his two hands in hers.

"It doesn't take much to make some people happy," he said gruffly. "How'd you manage to live this long?"

She told him, in the shelter which smelled of leaf-mold and smoke and dampness. The town was wreckage when she returned to it. She'd had an ancient aunt living in a now-shattered cottage on the edge of town. The old lady had quite incredibly survived the bombing, and indomitably had taken possession of a sawmill-shed beyond the town's limits. Frances had found her.

The two women—the one so old and feeble and therefore helpless in adversity, and the other so young and therefore in deadly danger as civilization ceased to be—the two women kept themselves alive. They gathered crops from fields whose owners had been killed by the strafing planes which followed the bombers. They stored food and lost it to plundering Wanderers from whom they hid.

The aunt had died two weeks back. Frances found her shot dead. There was no explanation and no cause for it. She was simply shot. Frances knew of no person or any community she dared attempt to join. Three days since, a group of Wanderers—the restless displaced persons who roved everywhere like locusts, these days—had come upon her.

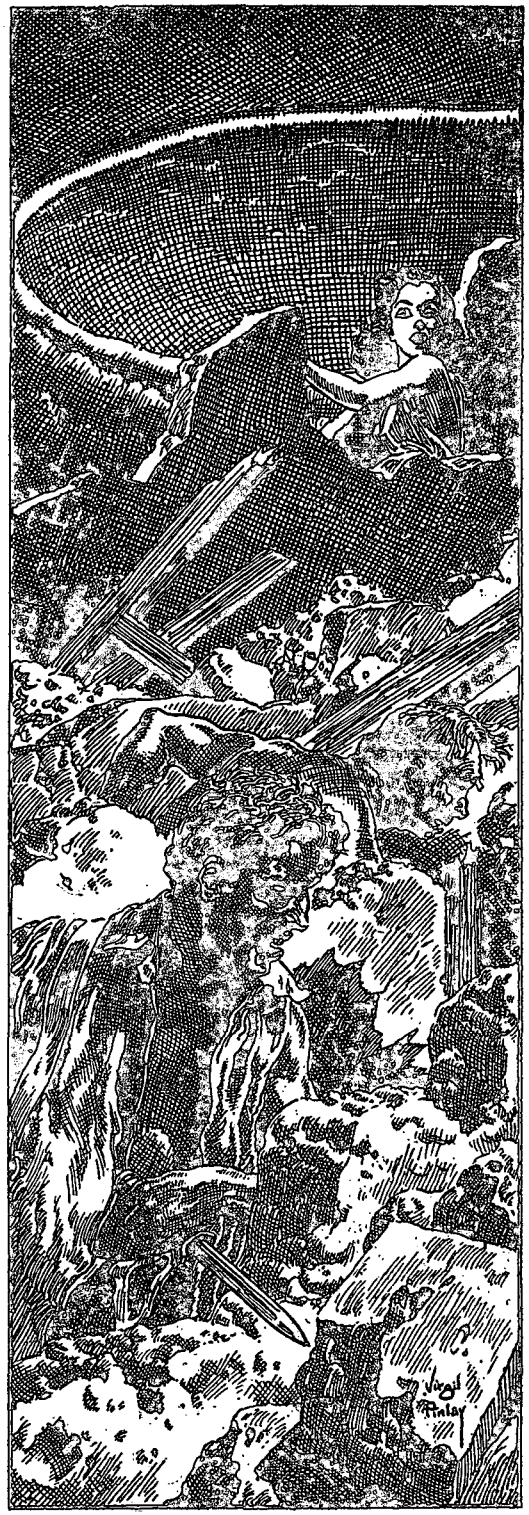
There were women in the band. At first Frances had hoped for safety with them, but one single day taught her better. Before nightfall she slipped away and hid. The women were glad of her going, but some of the men hunted her. One had been close at her heels when she hid in the wreckage of the town. Steve had seen the rest. He'd killed that man.

"And then I suggested that we go out and cut our throats," said Steve. "Which still seems as good an idea as any."

He put leaves on the fire. Smoke filled the shelter, to drive away mosquitos. But Frances smiled at him.

"I want to give you something back," she said quietly. "I don't need it now. Here!"

He was fumbling in his pocket, but he



The farmer stayed close to Steve as he searched the ruins, holding the knife ready in his hand, while Frances watched breathlessly (CHAPTER X)

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looked. She offered him the rusty knife he'd taken from the dead man's pocket.

"I don't need it any more," she repeated. She smiled, but there were tears in her eyes.

Steve grunted. He took the knife, but he put something else in her hand. It was the small automatic and the bullets which had been his greatest treasure.

"It's not enough," he growled. "Not if there are Wanderers around, and they're that kind of Wanderers. You keep this handy, but for Heaven's sake don't waste the bullets! There simply aren't any more!" Then he added firmly: "It's better for you to have it, because in case of trouble we're both in, they'll be watching me for surprises like that, and you'll have a better chance to make good use of it."

She hesitated, and he reached over and dropped it in her coat pocket.

"Now go to sleep!" he commanded. "I want to get to work!"

She obeyed him to the extent of curling up on the bed of leaves. But her eyes stayed open, watching him. He scowled at the tiny bed of coals. This was bad! Existence had been precarious enough with only himself to think of.

It would have been worse with a girl to whom he felt no obligation, and whom he might be able to place with some grimly defensive group of farmers' families banded together against those who called themselves guerillas, and those who simply looted without excuse. But a girl he knew, whose father had started him off by interesting him in physics . . .

AFTER a long, long time, during which he did not even open a copy-book to write in it, she spoke softly.

"I've thought of something, Steve," she said. "In that bunch of Wanderers there was one man who didn't seem to be really bad. I think he'd have protected me. But the others frightened me so. . . ."

Steve grunted. He'd take her away from this locality tomorrow. Somewhere. There had to be some plan he could make, but there was nothing to plan with and nothing to plan for. Civilization was smashed.

The world was headed for barbarism unless some nation, somewhere, had improbably succeeded in keeping itself intact while the rest of the world went headlong toward destruction. And if one nation retained its civilization, the odds were that it would eventually enslave the survivors of all the rest. No, there was nothing to plan for.

"But mostly I mention him," said Frances, her eyes very large in the nearly complete darkness, "because maybe he could help you. He says his name is Lucky Connors. He says his luck is fool-proof. He says he's never missed a meal since the bombs fell, and he's never had a bad break, and—well—the other wanderers wouldn't play cards or anything with him, because he always wins. He is phenomenally lucky, Steve! If you could find out what makes him that way—"

"There's what you call a series," said Steve ungraciously. "It's a sequence of unlikely happenings. It may be of any length, even infinite. He may be in such a series. Those things gave me the clue I had."

The girl was silent, her eyelids drooped. Presently—half-asleep—she woke with a start and looked about her in terror. Then she looked pleadingly at Steve.

"I—started to dream you'd gone away and left me," she told him apologetically. "Would you—mind holding my hand until I'm asleep? It's been—pretty terrible, Steve."

He reached over and took her hand in his. It was small and it had been very soft. There were work-worn places on it now. He held it gently fast. She relaxed. She dozed off, and opened her eyes again and saw him still close by, and smiled sleepily and drew a deep breath. Then she suddenly went off into the slumber of complete security and weariness.

Steve swore under his breath. He sat very still so she could rest.

Half an hour later he heard sounds which did not belong in the night. Thrashing noises. They stopped, and began again. Something was moving about in the darkness. It was close by. It was coming closer.

Steve wriggled out from the shelter he'd contrived. He crouched down in the shadow of the giant tree he'd utilized as a ridge-pole. He had one of the sharp-pointed foils ready in his hand. He listened with all his ears.

Something drew closer still. Presently he could see it as a moving bulk amid the lesser shapes of tree-trunks. It was human. It stopped, and sniffed, and he knew how the shelter had been found. By the smell of the leaf-smoke he'd made to drive away insects.

The figure moved forward again. Steve tensed. There could be no friendly human

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being, and he had the girl to protect. The figure shifted something it carried, and Steve saw starlight, filtered through the trees, glint upon polished metal. The other man stopped, and stared specifically at the shelter, and moved cautiously toward it. The gun-barrel moved to a readier angle.

Steve lunged, quickly and expertly and silently. The needlepoint of his foil slid smoothly forward.

It stopped. With the impetus of the lunge behind it, the slender foil bent double and the figure whirled with a grunt of pain, and then there was a lurid coruscation of light and the feel of a terrific blow.

Steve knew vaguely that he was falling, before he ceased to know anything at all.

CHAPTER III

"Lucky" Connors

FROM a vast distance he heard a voice speaking in reassuring tones.

"Hey, quit cryin', Frances," it said. "He's gonna be all right! I ain't had a bad break yet."

Then Steve became aware of his body's existence. He was lying on his back, with a bit of fallen branch sticking into his flesh. Then he knew that his head ached. Horribly. He opened his eyes and saw leafy branches and twinkling stars between them.

"My luck's holdin'," repeated the confident voice. "Didn't that sticker of his bend itself all up on my rib? What's the odds against that, Frances?"

Steve heard the girl crying quietly.

"After all, I woulda shot him," the man's voice went on persuasively. "But instead, when I swung around my gun-barrel slammed him on the head. So that makes it right! He'll have a headache. And I got a hole in my skin that stings like blazes. All even! I've been pullin' for somebody to explain my luck to me and kinda show me how to use it. I got a hunch he's the guy who can do it!"

Steve's brain went round and round in his skull. All this did not make sense. But nothing made sense. Then, abruptly, it fitted together into something like lunacy.

It must be "Lucky" Connors! The man with the wandering band from which Frances had hid, but who would have protected her. The one who always won. Whom Frances had mentioned because if Steve could find out why he was so persistently fortunate, he might use it to solve the paradox of the indeterminate.

"I guess you're right," said Steve painfully. "About the headache, anyhow."

He stirred. Frances made a gasping exclamation and bent over him eagerly. Even in the dim starlight he saw the expression of unbelieving joy upon her face.

"Of course, though, I may simply be crazy," he said dizzily. "Tell you in a minute or two."

He managed to sit up. The man he had tried so painstakingly to kill—silently and without warning, as it was necessary to kill, these days—regarded him without animus.

"Me, I'm Lucky Connors," said the stranger amiably. "That sticker of yours was sharp enough, I figure, and it musta been at just the right angle, to stick a little way into my rib and bend, instead of slidin' off and goin' on through me. Lucky, huh?"

"Lucky," conceded Steve. This was completely insane. The man he had tried to kill, and justly enough, in the current state of things, was completely devoid of either anger or of triumph. In fact, he had leaned a perfectly good rifle against the fallen tree which was the shelter, and seemed to be taking no care of his life at all.

"It's like this," said the other man eagerly. "I got luck. Whatever I pull for, seems to happen. When Frances ducked away from the gang I was with, I pulled for luck to go with her. She's a good kid. And I've been pullin' for somebody to help me figure out what I can do with this luck I got. I don't understand it, but I figure it's something that could do a lotta good if it was handled right. You get me?"

"It's a series," said Steve. He put his hands to his head. "Gosh, this is crazy! Didn't we try to kill each other just now?"

"Uh-huh," said Connors placidly. "But we didn't. That's my kinda luck. D'you know anything about that stuff?"

"Yes!" said Frances eagerly. "He knows just what you want to find out, Lucky! And you—I told him not long ago that you could help him! It's the paradox of indeterminacy! It's—"

Steve held his head in his hands while it throbbed. He honestly doubted his own sanity. By all the laws of probability either he or this intruder should have been very

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dead, by now, and failing that by all the rules of human conduct, they should be at each other's throats. But, quite impossibly, they were both alive, through a sequence of improbabilities that couldn't happen once in a million years.

Frances talked quickly. He heard his own explanation of indeterminacy rephrased much more simply than he had put it. And then Frances went on to explain urgently that Steve had figured out some forces that would cause luck to be what one wanted it to be, only he didn't yet know how to generate those forces or to detect them.

IT WAS stark lunacy, there in a second-growth thicket by the site of a bombed-out town, with no law and no civilization and no hope for anything in the future, within a few minutes of a mutually attempted assassination.

An abstract discussion of probability at such a time and place was simply not one of the things that happen! And Steve's head throbbed horribly and he was somehow ashamed of his failure to defend Frances, even though she couldn't have needed defense or it would have been far too late by now.

"I got it!" said Lucky Connors' voice contentedly in the darkness. "He's the guy I've been lookin' for, all right! Listen, fella! We'll talk in the mornin'. You gotta headache. So you go get some shut-eye. My rib aches where you stuck it, and I ain't sleepy anyhow. I'll poke around an' set some rabbit-snares and we'll talk things over while we eat breakfast. Right?"

Steve expostulated in one last protest for the normal.

"How'll you see to set snares? This is awful! I'm crazy or dead or something!"

"It ain't you that's cracked," said Lucky Connors comfortably. "It's the facts. Listen! I got enough string for three snares. If I got three rabbits in the mornin' you'll know I'm right, huh?" He did not wait for an answer. He stood up briskly. "Okay. You go get some sleep. I'll be around in case of trouble. But I'm pullin' that there won't be any."

He moved away, and Steve stared dizzily after him. Frances took his hand and urged him to rest. She seemed extraordinarily encouraged. Which, Steve found himself thinking absurdly, would be luck for Lucky Connors, for Frances to feel safer and happier when he was around.

It was all impossible. Too impossible. But his head ached. He crawled back to the shelter and held his head over the heat of the few remaining coals. The heat stung the raw place where the rifle-barrel had hit, but somehow it soothed the headache. He grew sleepy. He lay down. Suddenly he slept.

He woke to the sound of movement outside, and instinctively reached for weapons. Then Frances disentangled her fingers from his and smiled at him.

"That's Lucky," she said confidently.

Steve went out. A bearded, stocky figure was cleaning the last of three rabbits. He nodded to Steve.

"'Mornin'," he said cordially. "I got three, like I said."

He held up the rabbits.

They ate breakfast, a rabbit apiece, cooked over Steve's revived small fire. As they ate, they talked—or Lucky did.

"Y'see, I' been pullin' for somebody to explain this business, and I' been thinkin'," he said earnestly. "What Frances said checks up. You claim there's some kinda force, like electricity, maybe, that decides what things happen, like chemistry decides whether things will burn or not. Rock won't burn. Wood will. That's chemistry. You can't throw a seven every time shootin' crap. That's kinda like what you're talkin' about. Only if you knew what kinda force makes seven come up sometimes, you could make it show every time. Right?"

Steve nodded wearily. All this sequence of improbabilities seemed to him to hint at the verification of the theories in his treatise on the paradox of indeterminacy. For that exact reason, he suddenly felt a hopeless doubt of their validity. Theories like that shouldn't be proved by eccentrics like Lucky Connors. It wasn't the scientific method! One should know what one was about!

"Okay," said Lucky Connors. He drew a deep breath. "I got something that works that way. This is it."

He fumbled inside his shirt, and Steve noticed the bloodstain where his foil had punctured it and—it was still impossible—stuck fast on Lucky's rib instead of killing him. Lucky brought out a curious lump of some glassy substance, covered with minute crackles. He handled it with what was patently assumed carelessness.

"A talisman, eh?" said Steve.

"I dunno what it is," admitted Lucky. "I

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come on a place where a bomb went off, an atomic bomb. It was a whale of a big crater, a coupla miles across. And it had a funny kinda smell to it. You know?"

"I know," agreed Steve grimly. "They're good places to stay away from. When they smell, that's ozone, and the place is plenty radioactive."

LUCKY made a gesture, indicating his indifference.

"Yeah? I didn't know that. This was where there'd been a city, and right close to the edge of the crater there was some lumps in the ground under that glassy stuff the bombs make. It was like there'd been a concrete foundation to whatever'd been there, and it wasn't quite smashed or melted.

"I camped by the edge of the big hole, lookin' over the place and kinda thinkin' about the people that'd been in the city when the bombs struck. When it got dark there was little misty lights down in the bomb-crater. It looked spooky. But down behind those lumps that mighta been concrete foundations, there was a bright spot that didn't look like the rest.

"It was a spot of kinda purplish-greenish light. Real bright. And I went over to it—it wasn't far in the crater—and it stayed put. Then I dug it out. It still shines in the dark. I keep it covered up so's people won't notice."

He put the stone from the crater into Steve's hand. And Steve stared at it and held it up to the light, and then examined it minutely.

"Well?" said Steve at last.

"It was interestin'," said Lucky Connors. "I looked at it. But I was hungry. I sat there holdin' this thing in my hand and I says to myself, 'This is pretty, but I wish I had somethin' to eat.' An' the thing felt kinda warm all of a sudden. It warmed up considerable. I got interested wonderin' how come it turned warm like that, an' then, *plop!* I heard somethin' fall on the ground a little ways away."

Lucky Connors paused, and looked defiant.

"You ain't goin' to believe this, but when I went over there, there was a big barn-owl flappin' around like he was lookin' for somethin' he'd dropped," Connors went on. "He'd tried to make off with a rabbit that was practically full-grown, and the rabbit had got loose somewheres up aloft and come plop down on the ground. With the fall and the owl, he was barely kickin' when I found him. It was creepy! Me wishin' I had somethin' to eat, an' this thing gettin' warm in my hands, an' then *'Plop!'* that rabbit fallin' outa the sky. It scared me to blazes and gone. But the rabbit sure tasted good! So—I figured the thing was like a lucky stone and I kept it and I' had luck ever since."

"What you've got there—*hm!*" Steve said slowly. "It was a bit of yellow ore, once. Uranium ore, I'm guessing." He looked up suddenly. "The town was Chicago, eh?"

"Sure!" said Lucky. "How'd you know?"

"Uranium ore doesn't hang around everywhere," said Steve. "The south side of the ruins?"

"There ain't any ruins," Lucky told him. "But it was on the south side of where there'd be ruins if there was any."

"University of Chicago," said Steve. "Nuclear Research Laboratory. That's it!"

He felt Frances' eyes intent upon him. Lucky Connors grinned and nodded.

"I was pullin' for somebody to explain it. What have I got?"

"Heaven knows!" said Steve grimly. "When you bombard uranium with a cyclotron, you get neptunium and plutonium. That happens in a laboratory. But this is uranium that was bombarded by an atom bomb, something a lot more powerful than a cyclotron!

"It's not neptunium or plutonium, obviously. It's something else that's probably beyond either in atomic weight. It's something quite new, I suspect. Something that couldn't be anticipated, and I'm fairly sure it couldn't be duplicated. But it's probably dangerous."

He handed back the odd bit of matter.

"I wouldn't carry it on my body if I were you," he said detachedly. "Sheathe it in lead, anyhow. Nobody can guess what it's like or what it will do. It couldn't be made in a laboratory because you can't bombard anything with an atom bomb and have anything left. But it happened here. I suspect pretty strongly that it's at least as active as radium, though probably in some different way. Better not carry it. A radio-burn is bad business!"

"Not carry it?" Lucky Connors regarded the object, and then shrugged. "I ain't missed a meal or had a bad break since I had it. I pull for good luck for Frances and she gets it. I pull for a guy to explain it to me, and I meet you. I pull for three rabbits

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in three snares this mornin', and I get 'em! And you tell me to throw it away?"

"They could all be coincidences," said Steve doggedly. "The improbable is a part of probability. Things as improbable as these—even a sequence of them—have to happen sometimes."

"Yeah?" said Lucky. "Do they have to happen to me?"

BUT the girl was obviously puzzled. "You said something about a force that would make heads turn up a thousand times in succession if applied that way, Steve," Frances said quickly. "Maybe this generates that force. Maybe you'd better try it. You'll let him, Lucky?"

Lucky handed the object back to Steve.

"I pulled for it that he's a square guy," he said calmly. "If my luck holds, he'll play fair and give it back."

Steve took the thing in his hands. He asked curt questions. You held it in your hand, said Lucky, and wished for something. Mostly it worked. Sometimes—occasionally—it didn't. That was when you wished for something that was impossible, like a glass of ice-cold beer. If what you wanted could happen by any conceivable accident, the thing would warm up. Sometimes it got fairly hot. If it warmed up, you knew that it had worked.

Steve held it in his hand. He frowned. His expression grew sheepish, but he concentrated doggedly. Then he stared sharply at the jagged thing in his hand. It had warmed perceptibly. It was hot! He dropped it with a sudden exclamation. A dried leaf, where it had fallen, suddenly turned browner, then black, and then sent up a thin, wispy curl of smoke.

"That was a tough one you gave it," said Lucky. "I never knew it to get that hot before!"

"If it works," said Steve, unbelieving but still staring at the scorched leaf, "I'll be raving crazy!"

Apparently, however, it didn't work. Nothing happened. Nothing at all. Minutes passed. Frances gazed all about her. She listened and she looked. Steve was tense without knowing why. He had an explanation of how a lump of uranium ore bombarded by an atomic explosion might just possibly arrive at an insane condition in which it could generate the forces he'd imagined. But he didn't believe it would. He'd put it to a test, and he was enormously wrought up about it, but he assured himself grimly that it was all nonsense.

A quarter of an hour. Nothing. Then Steve could look at the new and quite crazy theory with something like regret. It was impossible, but it was so plausible! It wasn't scientific, to be sure, in one sense, but when you are dealing with the laws of probability, ordinary reasoning doesn't apply. All you can do is estimate your answers by statistics. One hundred per cent positive reaction would violate all—

There was a noise overhead. A thin whistling sound. It grew nearer and louder and rose in pitch. It became a scream; a shriek.

Then something flashed down out of the sky nearby. It was not a bomb, but one instantaneous glimpse of it proved it to be bright metal. It hit nearby. It smashed into trees a quarter-mile away, created a monstrous tearing noise and a stupendous crash. Then there was silence.

Steve went deathly white.

"It worked, all right," he said through stiff lips. "Let's get away from here! Fast!"

CHAPTER IV

The Crater-Stone

THINGS looked good. They looked amazingly good. Steve had considered that the most improbable of all possible events would be the crash-landing of a plane—one of those planes which groundlings never saw, but which now and again dropped death out of utterly empty sky wherever traces of surviving or reviving civilization appeared.

Somewhere there was civilization which was intent upon the destruction of all rival civilization. But in seven months Steve knew of only one other plane that had actually been seen, and the place from which it was sighted was now a bomb-crater. So in wishing, or "pulling for," the crash-landing of a plane which was not to explode and whose radio was to have failed before its fall began, Steve had assuredly put the crater stone to a brutally savage test.

Thrashing away through brush and occasional blessed pine woods where one could move swiftly, he knew that every stipulation

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of his wish had been met. A plane had fallen. They'd seen it. It had crash-landed. They'd heard it. It had not exploded, because they were still alive. Even its radio must have gone out before its fall, because there were no hovering specks above the scene of the crash even an hour later.

It was in fact, three full hours before his searching of the sky showed something monstrous and mechanical settling down out of midair to the scene of the plane-wreck. Other flying things soared nearby. But by that time the trio was ten miles away.

"It worked," he told his two companions. "In every detail. I was a fool to pick that for a test, though. Too dangerous, for us. They'll be checking over the wreckage now, to see if it was an accident, or if somebody on the ground managed to do something to cause it."

"They?" said Frances. "Who?"

"I don't know who," said Steve savagely. "The people with planes and bombs. Maybe the people who started bombs to falling. Maybe people who wiped out the ones who started it. But people who drop bombs now!"

The large mechanical thing had landed among the trees in which the plane had crashed.

"They'll pick up the wreck," he went on grimly. "If they're sure it was just an accident, they'll blast the place it occupied so there'll be nothing to encourage us groundlings with the idea that their planes can have accidents. If they think we used some weapon, they'll strafe this whole area. But I think they'll call it an accident. In a sense, it was. A coincidence. An improbable happening. Something like heads coming up a thousand times in succession."

They were on the slope of a small hill ten miles distant from their late stopping-place. The planes soaring above the wreck began to move in wider circles.

"Into the woods—quick!" snapped Steve.

They dived into undergrowth under trees. They toiled on where leaves were so thick that the sky overhead was blotted out.

Half an hour later they heard a drum-fire of explosions—of boomings which sounded like the deepest possible bass thunder. And Steve drew a breath of relief.

"They called it an accident and blew up the woods where it happened. They probably looked for tracks leading to it and didn't find any. That's luck, all right! But I wasn't too bright, bringing down a plane. We could all have gotten killed."

"No," said Lucky Connors comfortably. "I been pullin' we won't."

Steve stared at him. Then he said soberly:

"Sense! I didn't think of that! If you ever lend me that crater-stone again, Lucky, I'll tell you what I have in mind before I try it. I agree that the thing works, now. There's nothing else to believe, and I think I know how."

"I'm waitin' to hear," said Lucky. "The thing bothers me! It seems kinda spooky, like that guy had a lamp and he rubbed it and a spook come and asked him what he wanted done and then went and done it."

"It's no Aladdin's lamp," insisted Steve. "It's perfectly rational. It's inevitable! But it's devilish hard to believe."

THEY continued to move away from the scene of Steve's test of the enigmatic object. Frances toiled valiantly to keep up with them.

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TOPS FOR QUALITY
BIGGER AND BETTER

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"Every normal happening in physics and chemistry," said Steve, "is a case of things seeking a lower energy-level, like water running down-hill or two highly active chemicals combining to make an almost inactive compound. Cause and effect everywhere must be the same—happenings taking place to arrive at a lower energy-level. If I chop through a tree, though, I don't knock it down. It falls of itself. All I do is cut away the stuff that keeps it from falling. In the same way, when a ship is launched, one man with an axe can knock away the prop that holds a ten-thousand-ton ship from sliding overboard."

"You sure knocked somethin' down outa the sky," said Lucky with a grin.

"I don't think so," said Steve. "I think I just greased the skids for it to fall. Wherever there's a possibility of a thing happening, there's a force acting to make it. Back in Nineteen-Forty-Four or Forty-Five Professor Rhine at Duke University proved that some people shooting crap can make dice come seven oftener than chance would allow. They just pull for it."

"Not thought energy, Steve!" protested Frances. "It isn't enough to do anything!"

"It built cities and civilization," Steve reminded her. "And then it smashed them. My guess is that it's a sort of energy which does not affect matter directly, but only other energy. It controls other energy. And Lucky, here, has a step-up amplifier which increases its power to control. The stuff he's got is undoubtedly radioactive in one fashion or another. I think, though, that it's unstable in a fashion which is affected only by thought energy. Thought waves—call 'em that for lack of a better term—increase its activity. And it greases the skids for what you want to happen."

"Radioactive, huh?" Lucky asked as he grunted. "That's why it gets hot? Like radium?"

"Like an atom bomb," said Steve grimly. "Luckily, it's self-limiting. In effect, it amplifies your wishing, which makes what you want more likely. Suppose you're shooting crap and you pull for a seven. Your brain sets up a pattern which makes sevens come easier. But this stuff, affected by your thought, amplifies that pattern and pulls for sevens too. And it pulls harder than you can, and harder and harder—getting hot the while—until nothing but sevens *can* happen. And it's limited—"

"Steve, it only warms up if it's going to work," Frances said mildly, panting a little in her effort to keep up with him. "It doesn't stay warm."

"It warms while it's pulling. You can't pull for a seven after it's come. You can't will it to be daylight now. It *is* daylight. That thing can't pull for a seven after the seven is bound to happen—after it's sure to happen. After, in the space-time continuum, it *is*. And apparently it can't pull for an impossibility, either.

"Lucky can't wish for ice-cold beer because there simply isn't any. That stuff is an amplifier which works only when it's tuned to a possibility. When the possibility becomes a certainty, the tuning cuts off. But anything Lucky pulls for while he's got it, is going to happen if it conceivably can."

"I'm pullin' for somethin' now," said Lucky blandly.

They had been climbing steadily for several minutes. They came to open space again. They stopped short, but looked out beyond the brushwood to where ground fell steeply away to one side. They were able to look far back and see a thinning, dark-brown dust-cloud where the flying things had circled. The last of those soaring motes seemed to aim itself at the sky. It went up and up and up, increasing its speed as it climbed. It vanished.

"Blast 'em!" snarled Steve suddenly. "They smashed us! We'll get 'em now! We'll get 'em! Their own bombs made the stuff that'll bring 'em down."

"I'm gonna look yonder," Lucky Connor said comfortably. "I been pullin' for something."

Here had been a winding mountain road. No wheeled vehicle had passed along it in months, now, and what had been a highway was a meandering trail of weeds and grasses. But Lucky was wading through those weeds toward a curious green mound where the woodland started up again. There was a curious glassy reflection from one place within it. He yanked at the vines which covered it.

It was a car, parked off the highway when its gasoline gave out. Its owner had never come back for it, but creeping green things had crawled over it and moulds infested it. When Lucky wrenched open a door, there was only mildew and decay within. The sheet-metal body was rusted and leprous. The upholstery was furry with mould.

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LUCKY grunted with disappointment and went to the back. He kicked off the rusted trunkback lock. He fumbled inside.

"It's okay," he said, beaming. "My luck still holds."

He brought out one fungus-covered object and then another. They were suitcases. But they were the plastic luggage that had only been on the market a scant two months before the atom bombs began to fall. Metal or leather would have perished long since. When Lucky kicked them open, though, their contents were intact. And there were whipcord slacks and a girl's corduroy jacket which Frances seized upon with shining eyes, and a pair of shoes she declared would fit her, and other feminine oddments. She darted to one side to don the new finery. The second suitcase yielded a steamer-rug and shirts, a shaving-kit, and a revolver with a box of shells.

"She's dollin' up," said Lucky, jovially. "You shave, guy, and get beautiful, too."

"Listen!" Steve said fiercely. "I want to use that crater-stone of yours and bring technically trained men together. I want to make it find us books and tools and fuel and the chemicals we'll need. Then we'll smash these people—whoever they are—who have planes and bombs and use them! Afterward we'll start to build up again the civilization that's been smashed."

He was trembling with the fury of a man who has seen his whole world torn to bits and who at last feels that he has a chance to strike back.

"Just tell me when you wanna use it," said Lucky. He tapped his body where he kept the precious object. "It's all yours. But I better keep it meanwhile. You—uh—you might forget to use it to pull for the kinda breaks we need right along. Like—look at Frances, huh?"

Frances came back to them, radiant. The whipcord slacks and the corduroy jacket fitted her. She looked not only neat but smart. She'd combed her hair, with a comb from the suitcase. She'd used lipstick found in it. She was, for the first time since Steve had met her, filled with the infinitely precious feminine consciousness that she looked well.

But Steve hardly looked at her. A substance existed which had been made by the utterly uncontrollable violence of an atomic bomb. It was so sensitive that its rate of radioactive decay was controlled by thought-waves in its vicinity.

The long known, indirect effect of will upon matter was enormously increased by it. The paradox of indeterminacy had been resolved. Chance itself could be subdued to the purposes of men. He was filled with a grim exultation. He didn't notice Frances.

But she noticed that he didn't notice. Much of the radiance left her face. They went on. Nothing was said of a destination, but they would need food, presently. The way to find food was to keep on the move. At noontime they came upon an abandoned farm, its buildings ashes. But there was an orchard. Steve and Frances gathered fruit, and Lucky slipped away and came back triumphantly with two clucking, protesting chickens.

"It's a wonder the foxes ain't got 'em," he observed. "Or maybe it's just luck. Huh?"

They ate. They went on. And on. And on. Toward sundown they saw the rusted tracks of a disused railroad. There were other signs that they were near what had been a city. They camped in a small structure which had been a tool-shed for a track-maintenance crew.

After darkness had fallen, Steve held out his hand to Lucky. He hadn't seen Frances' first enormous satisfaction fade away as he seemed oblivious to her changed appearance. He'd spent most of the day planning, in absorbed, vengeful satisfaction, the use to which he would put the controller of chance.

"I'll use that crater-stone now, Lucky," he said.

"Wanna tell me how?" asked Lucky.

"Bring together trained men," said Steve. "Supply them with the materials to make and service planes. Smash the places where bombs and planes are based, and then start to build up civilization again. Bring law back. Bring back order and food and safety for everybody."

QUICKLY Lucky scanned Steve's face. Then he shrugged.

"Go ahead and try," he said drily. "If it was luck that'd broke down civilization, maybe luck could build it up again. But I think you're missin' somethin', fella. The bombs smashed the cities, but if folks had wanted to keep law and order and such, they coulda done it.

"Some places they wanted to, and they did—for a while. But this thing, it won't

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change people. The way people are ain't a accident, and no accident or any luck will make 'em somethin' else. I tried to make the gang Frances seen me with act different, but it didn't work. But you go ahead and try."

"I'll manage!" said Steve.

He took the small object and went confidently outside. In the outer dark it shone brightly with a greenish-purplish light. It seemed alive. He stood in a warm and starlighted summer night. There were the innumerable noises of night things in full voice; insects whirring and clicking, and the occasional cry of a nightbird, and somewhere close and very loud the croaking chorus of bullfrogs in a swampy place. They were loudest of all.

The other sounds could only be heard through the frog tumult. He was absolutely confident that he had in his hands all the power that was needed to remake the world. He had control of chance! He could control the accidental and the irrelevant!

The power of a single human will to control other forces had been proven long before, of course. The most careful scrutiny of Rhine's results, and their duplication elsewhere, had made it certain that dice and coils do not fall quite at random when the human will intervenes, though the amount of energy applied as thought had always been too minute to be measured or even detected save in the statistics of its results.

But Steve had brought down an aeroplane from the stratosphere with the crater-stone in his hand. He'd seen it grow unbearably hot from the mere waste energy of its action. He had the power of millions of wills in his hand—perhaps billions.

He thought, in grim carefulness, of the things he wished to have happen that civilization might return. He had no doubt at all. Not even of his own wisdom. He pictured what he wished to occur, and knew that as his wish became certain to occur, the thing in his hand would grow warmer and warmer and warmer. He thought vengefully, and waited for the heat which would tell him that his thought would come to pass.

An hour after he had begun, he stumbled back inside the little shed. Frances had been dozing wearily. She started awake and looked anxiously at his face. He was white and stricken and despairing.

"Did you hear the bullfrogs all fall silent for a solid minute?" he asked in a ghastly facetiousness. "I made them do that! I pulled for the coincidence that they'd all shut up at once. And they did! But that's all I could do! Apparently there's not a trained man left alive to join us. Not a tool-shop or a store of fuel or a motor or explosives or anything else. I pulled for everything that would make civilization return and the thing stayed cold. They were all impossible. But it warmed up nicely when I tried to control the bullfrogs."

He swallowed, and it was almost a sob. Frances stared at him. Lucky Connors listened in silence.

"I'll tell you what let's do," said Steve. He grinned at them, and it was more tragic than tears. "Apparently the way the world is, is the way the world is going to stay. Let's go out and cut our throats!"

CHAPTER V

Fight for Life

MORNING came and Lucky was missing. The revolver and cartridge from the abandoned motor-car were set out beside where Steve had finally fallen into bitter slumber. And Frances was gone, too.

Steve got up. He went out of doors. Emptiness. No sign of Lucky or of Frances, either. He went cold all over. Then a surge of such terrible rage as he had never felt before in all his life swept over him. He stood shaking, quivering with a lust for the blood of Lucky Connors.

There was bright sunshine all about. There was the now weed-grown double embankment with its twin lines of rusty railroad track. Day insects stridulated. There were green things on every hand, blandly indifferent to the destruction of all that man had built, and birds flitted here and there in complete obliviousness to mere human tragedy.

Steve stood still for a long time. Then he spoke aloud in a reasonable, a calm, and a totally unconvincing voice.

"Well, she showed sense. While he's got that crater-stone, she'll have plenty to eat, anyhow. She'd have married a rich man in the old days, because he could give her a car and a fine house and jewelry. Now she's sure of a stolen chicken or a snared rabbit

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every day. That's riches. He even gave her a trousseau!"

Then, suddenly, he cursed thickly and shoved the revolver and cartridges in his pocket. There were weeds growing on the railroad embankment. They were trampled and bent where two people had walked through them. Lucky Connors and Frances had left Steve and gone along the embankment toward what had once been a city. Steve followed.

His head did not clear at all. For more than seven months he'd clung to an insane hope that the highly theoretic and essentially unlikely facts he had gathered in six child's copy-books might mean the return of civilization. He'd hoped that they would lead to the discovery and the subjugation of a force which men have always experienced but never suspected, and that the force would bring back safety and hope and decency to the world.

Now he knew that the force existed. He'd handled a crude but sufficient atomic generator and control. And it was utterly useless. It would not bring back a dead world. It would bring stolen chickens, and it would stop bullfrogs from croaking, and with it he had destroyed an aeroplane of the enemies of all he'd ever believed in. But it would do nothing more. And now Steve, raging, abandoned the thought of remaining civilized. He wanted Frances. He hated Lucky. He would kill Lucky, and though she hated him and screamed, Frances would be his.

He passed a place where three houses still stood, unpainted and long abandoned. Presently he passed a two-acre space of mere black ashes, where fire had raged unchecked and weeds now grew luxuriantly. A heap of debris where houses had been pushed violently from one side and had collapsed upon everything within them, and strangely had not caught fire. Then a building of reinforced concrete, now an empty shell.

Then he heard a muted *pop!* He heard a keening yell. He heard a second *pop*. It was a pistol—a small pistol, like the one he'd given Frances. At the thought of her, fury swept over him again. He broke into a shambling run.

Then he heard a cracking sound which was no pistol, but at a guess Lucky's rifle. A chorus of yells followed the explosion. And these were not the voices of Frances and Lucky, but of others. Wanderers, perhaps. Human beings sunk to the level of wolves, like the man he'd first killed in her behalf.

On the instant, his rage evaporated, and the revolver he found out and in his hand was no weapon with which to meet such folk. A pistol was wealth unimaginable, these days, and it carried all the risks of riches. A man with a pistol, having none to punish him for murder, was supreme among his fellows, until one of them managed to kill him for it. One man against twenty or thirty or forty, even though he had a pistol, was not only helpless but doomed. They would take any risk to win it. He might kill half a dozen. The rest would close in because the pistol was a prize worth any danger.

Steve found himself running. In his hand he held one of the slender, needle-sharp foils drawn from his pack. He had the pistol ready for a last resort.

THEN, quite suddenly, he reached a place, where he could see the crater which occupied most of this city's site. About it was tumbled wreckage in which human scavengers might still hope to find some booty and even food in rusty cans. The crater was two miles across and chasm-like, save that it sloped down—all barren, glassy stuff—to sheer emptiness at its center.

And at the very edge of the crater, Frances stood at bay. Lucky lay flat on the ground. It was apparently his fall which had brought the triumphant howling which guided Steve. Stones on the ground—half-bricks and bits of rubble—told what had felled him. And Frances crouched desperately, her tiny pistol upraised.

She looked clean and trim and desperate, and her immaculacy and the completely feminine look of her caused some of the howling. The creatures who had stoned Lucky to unconsciousness yelled at her. They were horrible things. They hid behind remnants of concrete and rubble which had been left standing in that freakish skip-distance of a few hundred yards beyond a crater's rim before devastation replaces the annihilation of the crater itself. The ragged figures yelled and darted from one hiding-place to another, edging in for an irresistible surge upon her.

Steve's arrival was unheralded. His weapon was silent. He ran toward her, and paused to make a savage attack upon a group of four once-human things who

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seemed planning a simultaneous volley of stones.

His foil licked out and stabbed again and again, like the fang of a striking snake.

He darted forward with a bubbling scream following. He attacked and struck once more, and a shriek arose. He zig-zagged closer, crazy with blood-lust and fear for Frances.

He had struck three times before attention turned from her desirable figure to his deadly one. Then a bearded thing with maniacal eyes leaped at him with a club. His foil darted in and he ran on. Stones fell about him. He darted and dodged, striking when he could, and arrived at Frances' side as an uproar of animal fury filled the air.

Frances did not look ashamed or conscience-stricken, but uplifted and desperately glad. She smiled at him shakily.

"L-lucky was pulling for you to come, Steve," she said.

"How the devil did you two get into this mess?" Steve snarled.

A stone crashed close to him.

"We came to—get another crater-stone if we could," Frances explained unsteadily. "Lucky said it wasn't likely, but he—pulled for it and his stone warmed up. So we came. We h-had to look at night because the stone glows. We did find— *Steve!* Behind you!"

Steve whirled. His pistol spoke. They were doomed now in any case. He saw bobbing figures in the distance, called by the shots and yelling and now scrambling over wreckage to be in at the kill. There had been perhaps forty caricatures of humanity in sight at the beginning.

Now twenty or thirty more were on the way. The city had once held half a million people. A hundred or more could exist on what remnants even an atom bomb had left.

Lucky stirred. But he was dazed. Steve took his rifle. He fired three times—once at a nearby figure, twice at distant targets. The fall of the distant men filled their fellows with terror. They flopped down and ceased to advance. They would not encourage the nearer besiegers by arriving as reinforcements.

But there were yet other creatures popping out of holes, like rats. Steve saw men creeping toward the bodies of the two he had dropped. Not, of course, to offer aid, but to rob them of what poor loot they might offer.

More stones fell near the three at the crater's rim. They were not heavy enough to kill, but a lucky blow might stun, as Lucky had been stunned, and Steve saw a stark horror at the back of Frances' eyes. The girl was picturing herself at the mercy of these utterly brutalized scavengers in the wrecked remains of slums.

"Can't you use the crater-stone somehow, Steve?" she asked desperately. "Those rocks may hit us, and we can't keep shooting forever."

"The crater-stone," said Steve in bitterness, "will make anything happen that could happen by accident, but not a blamed thing more. It looks as if we're finished. We may be able to fight our way through, if Lucky comes to, but they'd trail us forever. If not for our guns, then for you."

A STONE missed his head by inches. It slithered over the crater's edge and went bouncing and skittering over the glassy lining toward the center a mile away.

He fired. A man shrieked. Purely animal, utterly unhuman yells arose all about them. The sound from the half-hidden, gesticulating creatures was not like that of any other animal on earth. When men become beasts, some dim remnant of perverted intelligence guides their descent into an abyss of bestiality. No mere beasts would have shouted such things to Frances. And there were some cries which made it terribly clear that sooner or later a rush like a starving wolf-pack would be made upon them, and they knew what their fate would be.

Lucky stirred again. Steve fired once more. Every inequality in the ground sheltered some scarecrow. They were snarling and yapping and regarding the embattled humans and their weapons with almost equally frenzied desire.

"I used the crater-stone, Steve," Frances spoke quietly. "It got warm. We can go now. W-will you try to carry Lucky?"

Steve did not relax his grim watch over the howling besiegers. But he suddenly noted that the number of those who exposed themselves to fling stones decreased. Second by second, almost, it seemed to lessen. In a minute, the number of missiles had dropped to half. They continued to grow fewer. The distant scrambling figures no longer advanced.

In three minutes the howling was as great as ever—if anything, it had increased—but there were no more stones at all. And Lucky had turned over and was trying groggily

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to get to his feet. Steve still watched savagely.

"I—used the crater-stone," said Frances again. "I think we can go now. L-lucky's getting up."

"Yeah!" said Lucky dizzily. "What a conin' I got! That ain't my kinda luck!"

He steadied himself by Steve and rose to wabbling erectness. There was a ululating uproar all about them. But there was no longer a single stone in the air.

"What happened?" Steve asked. "What did you do, Frances?"

"I used—all the crater-stones and—pulled for them not to throw any more stones or come any closer. I—wished they couldn't. And—they can't!"

Steve ignored Lucky's dizzy swaying. He thrust the rifle back into Lucky's hand. He strode forward, his foil once more in readiness.

A few moments later he stood above a hollow in the ground in which three scarecrows writhed and wriggled. One snarled at him helplessly, working feverishly at his right hand and arm. A second lay doubled up kicking, clutching at his middle. A third wheezed and coughed and blasphemed stranglingly. His eyes upon Steve were terror-filled, but his paroxym of coughing did not cease.

Steve went back to the others.

"But that ain't my kind of luck!" Lucky was saying querulously. "I got conked on the head! It's the first bit of tough luck I've had."

"Sling one arm around my neck, Lucky," Steve said. "We'll all get going. Frances hit on the trick that we didn't know, last night. They won't follow us."

Frances put herself on Lucky's other side. Bracing him between them, they moved toward the railroad embankment. They climbed it, while the noise of those who had besieged them rose to a new climax of inprecation and hatred.

They moved along the knee-high weeds which grew even in the gravel between the disused rails. Lucky recovered strength, with movement. In half an hour they had passed the tool-shed in which they had camped the night before.

"But that ain't luck!" Lucky protested again, after a long period of painful meditation. "I got a headache! That guy knocked me cold with a half brick. It's the first bad break I had yet!"

Steve had been silent, too. Not because any trace of his former suspicions of Lucky and Frances remained—they had vanished, somehow, with the discovery of the two of them embattled and about to become prey to the man-pack. He had been putting two and two together in the light of a mentally revised chapter of his treatise on the Paradox of Indeterminacy.

"Listen," he said drily. "I used the crater-stone last night. I couldn't do a thing except make frogs stop croaking. Remember?"

"Yeah," said Lucky. "But I pulled—"

"My guess is that you pulled for us to find out how to make the crater-stones work all the time," Steve told him. "You had to be knocked on the head for it to happen. So you got knocked on the head." He grinned with grim amusement. "You want to be careful how you pull for things with your luck, Lucky! Especially when you're being altruistic. That conk on the head was probably the luckiest thing that's happened yet. But if you keep on you'll luck yourself into getting killed!"

CHAPTER VI

Hiding Their Trail

DDLY enough Frances and Lucky had found no less than three lumps of brightly shining glassy stuff in the crater. They were upon the line the railroad must have taken before it had ceased to be, together with nine-tenths of the city. At a guess, a shipment of uranium ore might have been in the area of annihilation when the bomb dropped. Perhaps it had been on its way to one of the atom-bomb plants the United States kept in operation. Or perhaps the fragments had been in a collection of mineral specimens in some school or museum.

The odds were incalculable against Lucky—having found the first one—finding more of the things Steve believed the result of the bombardment of uranium by the blast of an atomic bomb. But that finding had not been impossible, and he had pulled for it, and the first crater-stone had grown warm as he did so.

Now the three of them had breakfast and lunch in one, at a spot some ten miles from the ruined town. A small wild piglet poked an inquisitive snout at them from a cane-

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brake and Lucky shot it. There were wild grapes nearby.

Lucky scooped out a hole in the ground, built a roaring fire of fallen branches, rolled the piglet in clay, and covered it in embers. The piglet cooked comfortably while Steve wrote feverishly in his copy-books. When the meal was ready he had organized his notions.

"It fits into a pattern," he said exultantly, his mouth full of tender roast pork. "Probability is anything that can happen. If you know how many different things can happen, you can figure out the odds against every one. When you throw two dice, just so many combinations can turn up. They can't make more than thirty-six combinations, because there aren't but that many combinations possible.

"A seven can be made in six different ways, so the odds are six in thirty-six you'll make it on any given roll. A two or a twelve can be made only one way each, so the odds are one in thirty-six you'll roll them. But with Lucky's crater-stone he can pull for a twelve, and the stone will warm up and he'll get a twelve every time. Because it supplies energy in a pattern so that nothing else can turn up! That is, nothing else will turn up by chance, because the crater-stone controls chance. Right?"

"Yeah, I guess so," said Lucky gloomily. "But I just got conked on the head, and that ain't luck any way you look at it."

"Wait a while!" said Steve. "When you roll dice, there are thirty-six combinations possible somewhere in the future. Your crater-stone picks out one and blocks all the rest. But suppose you pulled for your dice to roll a thirteen! There's no thirteen in the future to be picked out. The crater-stone can't pick it out, and it simply doesn't work, eh?"

Lucky grunted. "Wrong, fella! I tried that once and it scared me to death."

"One of the dice was cracked, eh?" asked Steve. "And when you rolled, it hit something and split into two parts? And read thirteen?"

"Y-yeah! How'd you know?"

"That was the only way it could happen," Steve told him. "There was a thirteen in the future of that particular pair of dice. So you got it. But on an uncracked pair you couldn't."

"But this conk on the head?"

"You pulled for us to find out how to make the crater-stone work all the time," Steve reminded him. "When you did, there were any number of things that could happen in the future. Instead of thirty-six combinations, there were hundreds of thousands. But only one set of events would show us how to use the crater-stones. So that was the one that had to happen."

"I don't get you," answered Lucky, looking puzzled.

"If you hadn't been conked you'd have been trying to use the stone," Steve explained. "If I hadn't been there, Frances would have been too busy defending herself to try. But when the one possible set of things happened, she used the crater-stone in the way that only she would have thought of using it, and those creatures couldn't attack us!"

"What happened to them, Steve?" asked Frances uneasily. "Did I—kill them with it?"

STEVE grinned, without too much amusement, and cut himself another bit of roast pig.

"You did better than that," he told her. "You found the trick we needed. Last night, I tried to make some detonators explode. I tried to make some physicists come to where they'd meet us. I tried to pull for toolshops, and aeroplane parts, and fuel-stores, and the like. I knew too much about what I wanted. I made what were practically blueprints of what I intended to have happen.

"And those things weren't in the future. They couldn't happen by accident. But all the frogs would stop croaking sooner or later. For every one to shut up for no particular reason—by accident, you might say—was in the future. So pulling for them all to be silent at once simply meant wishing for a coincidence. And it happened!"

He took a huge bite, enjoying himself. Frances shook her head. He went on, his mouth full.

"You wished they'd have to stop throwing stones. You wished they couldn't attack us. And in the make-up of every man there's a possibility of some happening that will incapacitate him. Maybe abdominal cramps or a paroxysm of coughing. A nerve-block that will make one arm useless for a while. Those things happened to different men.

"Maybe some threw epileptic fits. Maybe some fainted. There may have been heart-attacks or sudden malarial chills—anything

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that could chance to happen to any man to stop him from attacking was bound to happen, by chance, because the crater-stones control chance. You see?"

LUCKY blinked at him, chewing slowly. Frances stared, frowning, and slowly her forehead cleared.

"I—think so. If I'd wished for them all to drop dead, it couldn't have happened, because it couldn't happen by chance. You might say it wasn't on the dice."

"Exactly!" Steve nodded emphatically. "Lucky can't do miracles. He can't do the impossible. But he can do the improbable—the wildly unlikely. The one-in-a-million or one-in-a-billion chance. The indeterminate stops being indeterminate when a crater-stone works on it. Most results are somewhere in a possible future. Not all, but most. If they are possible, they're available to him."

Lucky chewed, and swallowed.

"Fella, I pulled for somebody to explain my luck to me," he grunted. "I got my explanation. And I got some extra hunks of that stuff back yonder. One goes to Frances. You take the rest. I pulled for you to be a square guy. Now I'm just gonna watch."

"I don't know what you'll see," Steve told him. "But that ought to make it possible for people who want to live like humans instead of beasts to do so. And if it can, it surely will."

His lips set. There'd been a small community he'd seen, on his way from Thomas University to his home town. It was after he'd withdrawn from membership in a gang that called itself guerillas, and after he had evaded their attempted vengeance for the killing of one of their more prominent members. The community was a village of a dozen or so houses and some surrounding farms.

Steve had gone to them to warn them of an intended foray by the guerillas—a foray in quest of food and women. He joined them in an ambush of the guerillas. The looters were driven off. And Steve, scouting after the battered, wounded, snarling band, had been absent from the community when bombs fell on it. He saw the flares in the sky and felt the shocks in the earth.

Steve returned to find gigantic craters where the village and most of the farms had been, and the blast-effect had destroyed all the rest. And he knew, then, that the falling of bombs on that small and resolute village was not an accident. It followed too closely their success in defending themselves against looters. It was the consequence of that success.

The people who had planes and bombs wanted all other civilization destroyed. They preferred it to destroy itself. But they would let no seed of future rivalry survive. Unquestionably, among the looters and bandits there were agents of the people with planes and bombs, watching lest any sanity or decency remain anywhere.

"It occurs to me," said Steve suddenly, with narrowed eyes, "that if some of our friends recovered, back in town, they just barely might trail us, or they might tell some other people who'd take entirely too much interest in Frances' system of self-defense."

Frances regarded him with unquestioning eyes. Lucky frowned meditatively. Steve considered—and Lucky handed him no less than two of the crater-stones, and passed one to Frances. They varied in size, those three, but they were essentially duplicates of Lucky's own.

[*Turn page*]

Now She Shops "Cash and Carry"

Without Painful Backache

Many sufferers relieve nagging backache quickly, once they discover that the real cause of their trouble may be tired kidneys.

The kidneys are Nature's chief way of taking the excess acids and waste out of the blood. They help most people pass about 3 pints a day.

When disorder of kidney function permits poisonous matter to remain in your blood, it may cause nagging backache, rheumatic pains, leg pains, loss of pep and energy, getting up nights, swelling, puffiness under the eyes, headaches and dizziness. Frequent or scanty passages with smarting and burning sometimes shows there is something wrong with your kidneys or bladder.

Don't wait! Ask your druggist for Doan's Pills, a stimulant diuretic, used successfully by millions for over 50 years. Doan's give happy relief and will help the 15 miles of kidney tubes flush out poisonous waste from your blood. Get Doan's Pills. (Adv.)

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BUT Steve only nodded absently, for he was thinking. They went on along the abandoned railroad. Presently they came to a trestle across a small, fast-flowing stream.

"In case our fine feathered friends back yonder trail us," said Steve, "or in case they tell somebody else, we'll build a raft that would carry us downstream. And our trail will definitely end."

Lucky unquestioningly set to work. They had no ax, so chopping was out of the question. But they dismantled a wooden fence and bound its bars together with wire from a single-strand cattle-fence of wire. They made three bundles and fastened them together into a raft, fifteen feet long and four feet wide. They launched it.

"And I'll try out my new crater-stone," said Steve.

He put his hand in his pocket. His expression grew satisfied.

"It warmed up," he observed. "Fine! Now we'll cast the raft loose and wade upstream."

Lucky's eyes crinkled with amusement. Frances stared.

"Look," said Steve, with a wave of his hand. "Anybody could tell we made a raft here. Anybody who wanted to trail us would follow the stream down. And I just used my crater-stone and pulled for the raft to float on merrily without grounding anywhere until it gets to a fair-sized river. So even if it's finally found, they'd still think we got off somewhere downstream from here."

Lucky chuckled.

"You got a hunch, huh? You think things ain't as disorganized as they look? I'm gettin' me an idea, too."

He splashed into the stream, joining Steve. But Frances rolled up her new whipcord slacks before she began to wade.

Steve seemed now to have a definite destination in mind. He pushed the pace. Walking in water was tiring, but he moved briskly upstream, Frances followed, and Lucky brought up the rear. Lucky had a long, stout, sharp-pointed stick in his hand, split off from a fence-rail. For the first mile or so he seemed to use it as a walking-stick. Then he reversed it. Now and again he halted. Once he fell so far behind that Frances paused anxiously.

"Hadn't we better wait for him, Steve?" she asked.

But then Lucky came into view, strolling in rippling water six inches above his ankles, and Steve went on without comment. They walked, altogether, nearly seven miles in shallowing water, by which time the stream was barely a brook and it was very late afternoon, and practically dark.

"It's about five miles more to where I want to go tonight," said Steve, in worried tones. "We'd better hit it up a little."

Frances looked very weary, but she rolled down her dampened slacks and uncomplainingly prepared to go on. Lucky glanced at her. "You tryin' to make Frances work up a good appetite?" he said humorously.

Steve shook his head.

"I'm trying a new trick with the crater-stones. I'm trying to make them yield information, indirectly. There used to be a house up this way that would be ideal for us to hole up in. A man I knew had it as a sort of hunting cabin. It's out-of-the-way and as likely as any place to be still standing. So I pulled for it that we'll sleep in it tonight, in safety, after a meal we've gathered on the way. The stone warmed up.

"If the house weren't standing, it wouldn't be possible for us to sleep in it. It wouldn't be on the dice, so to speak. If there weren't some happening tied in to it to be arranged, the stone wouldn't have needed to warm up. When the two things are linked, the warming of the crater-stone means that both have to happen, and the house must still be standing and in shape to sleep in."

Lucky blinked.

"Hey! That's—" He stopped. "Migosh, I see it! I pull to roll a thirteen on dice and the crater-stone won't warm up unless one of 'em's cracked. So if it warms up I know one's cracked without lookin' at it. Sure! Sure! So you know there's a house there and it's okay."

"We haven't the grub yet," said Steve.

"Shucks," said Lucky. "I had a sharp stick in my han'. I been stabbin' at fish all the way upstream. I got seven, two big fellas and five little ones. Grub's all set. Let's go on and get a good night's rest."

HE TOOK the lead, now, exuberant and happy. Steve and Frances followed. Frances was tired, but she smiled at Steve as he waited to help her up a steep place on the way they had to go.

"That's an awfully good trick," she said. "Using a crater-stone to find out things. If you can make things happen and find things out—"

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"We can," he told her. He held her hand to ensure her balance on tumbled rocks. "And I've found that all three of us are going to live through what's coming. I pulled for the three of us to be together five years from today. And the crater-stone got warm. Thousands of millions of states of affairs could exist for all three of us five years from now, but now none are possible which don't allow us to be alive and in the same spot."

It was very late dusk. The first faint stars winked into being. Shadows of the tall hills into which they made their way made it almost dark where they moved. Lucky, on ahead, was singing lustily to himself. And the footing became quite secure, but Steve still held Frances' hand, as if unconsciously, and she let him, as if unaware. Yet the pressure of her fingers was warm and strong against his palm.

"I didn't realize it, but I know something of the future, too," she said softly. "I wished for something. And it will happen."

"What?"

She shook her head, smiling up at him.

"You don't want to fool with the things," he said anxiously. "We've still got to find out how they work. Lucky got hit on the head as the result of one of his wishes only this morning. You've got to be awfully careful. They're dangerous!"

"Not what I wished for," said Frances.

Somehow, they were standing still and facing each other. Frances' hand was firm and soft. She looked very wistful. She was very pretty, but as she looked up at him her smile was wavery and a little bit frightened, too.

Suddenly he took her in his arms and kissed her. A dozen times over, with long-pent-up enthusiasm. And then he released her.

"I'm sorry, Frances!" he said contritely. "I wanted you to feel safe with me, but you're such a swell girl—I just couldn't help it!"

He gulped. He suddenly realized that he still had his arms around her, holding her fast so she couldn't flee until he had placated her.

Then he realized that she wasn't trying to flee. She still looked a little scared. But she looked glad, too.

"S-silly," said Frances shakily. "Of course you kissed me. What do—what do you think I used the crater-stone to wish for?"

CHAPTER VII

Lucky Takes a Jaunt

DESPITE their haste, they reached the house late; when the moon in its last quarter was barely above the horizon. It was a small house and a snug one, built into the side of a hill, with many trees around it and tall second-growth beginning not far away. Steve and Lucky scouted it cautiously, weapons ready, and at last stood sniffing at smashed-in doors, and it was empty.

But they searched it thoroughly in the darkness before they gathered in the big living room and Steve made a fire in the great stone fireplace. As its first flickers rose, he pounced upon long drapes, bunched in untidy heaps upon the floor. He was hanging them across window-openings before Lucky realized what he was about.

Then, as the light in the fireplace increased, the two of them prowled about—and Lucky went outside to make sure that no ray of light escaped, and Frances regarded Steve with shining eyes and he kissed her again very satisfactorily—and made everything quite light-tight.

"They blacked out cities back in old war times," said Steve. "Later radar made that useless. Now that there's no more civilization, a lighted window means somebody trying to get back to it. So the old-fashioned blackout comes in again."

"And the old-fashioned fish-fry comes back too," said Lucky re-entering the room. "Only these got to broil before the fire."

As Lucky began to cook the fish he talked, meditatively.

"You said somethin' today that set me to thinkin'," he said. "And you went to a lotta trouble to make sure we weren't trailed here. What makes you so positive there's somethin'—uh—phony about the way things are?"

Steve told him of the small community he'd found in which the folk had resolutely tried to cling to all of decency and civilization that remained. He also told of the band which called itself guerillas, and how he'd killed a leading member, and how he had gone ahead to warn its prospective victims. Then he told of the victorious defense, and the bombs which fell upon the defenders afterward, obliterating them and all they'd fought for.

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"So somebody doesn't want civilization to come back," said Steve. "You see why, of course."

"Nope," said Lucky.

"There can't be an atomic battle," Steve pointed out. "There can only be atomic massacre. There can't really be an atomic war. There can only be a contest in destruction. And there can't be conquest by atomic bombs. You can kill people with 'em, but you can't conquer them. So when this thing started, the United States couldn't be conquered. It could only be smashed. Which it was! Most of the world was smashed, too. But the part where the aggressors live, escaped. Not completely, I suspect, but after a fashion. Left alone, we Americans would start to build up our civilization again, because even an unharmed other nation couldn't occupy all of America. These people probably didn't have nearly enough people left. They certainly haven't ships and supplies to carry and maintain an occupying force. But if we built back, we'd be dangerous some day. So what would they do?"

Lucky grunted.

"I'm beginnin' to guess, fella, and I'm mad!"

"So am I," Steve told him. "It isn't all guessing. Those people would establish bases where they'd store planes and bombs. Those bases wouldn't be used to conquer anything, just keep us from rebuilding anything. They'd send out spies with pocket radios, to roam around with looters and so on. They'd have their planes keep up surveys. Ploughed fields mean people still holding on. Where they found civilization hanging on, the spies would lead looters to rob and wreck it. If the looters failed, they'd use planes and bombs."

Lucky Connors growled a little.

"It adds up, I think," said Steve, carefully. "If they can keep us at the level of animals for fifty years or a hundred, we'll be merely savages, those of us or our children who'll be left. And meanwhile the people who keep us degraded will be breeding feverishly in their own country, so that some day they can come over and occupy a nearly empty continent, peopled only by savages and not many of them. Possibly," he added evenly, "it's not only one continent they plan to reduce to savagery for their descendants to swarm over. Maybe it's all the world. Maybe they plan one great nation of one blood which will people the whole earth. All they have to do is exterminate all other nations."

Lucky growled again.

"They ain't goin' to get away with it."

"No," said Steve. "I'm beginning to hope they won't."

LUCKY stared at the fire.

"Yeah," he said presently. "I'm beginnin' to see somethin' I'm goin' to attend to, come tomorrow. Let's get some sleep."

They curled up before the fireplace, all three of them, and slept. Steve woke when Lucky shook him gently. He was wide awake on the instant. Lucky had pulled down one of the drapes they'd hung over the windows, and early sunlight streamed in. Lucky put his finger to his lips and nodded at Frances. Her fingers were intertwined in Steve's, and he flushed awkwardly. But Lucky seemed not to notice. He beckoned Steve outside, leaving Frances still sleeping.

"She's a nice kid," he said without expression, once in the open air. "You're goin' to look after her, huh?"

Steve looked at him sharply.

"What's up, Lucky?"

"I'm duckin' out," said Lucky. "I'm kinda crazy about Frances. She's kinda crazy about you. And I got that crater-stone that brings me luck, only it's got limits. I wanted somethin' the other day, and I got it, and I got a conk on the head because that was the only way I could get the rest of it. I learned somethin'."

Steve did not hear all of this very clearly. His mind was on Lucky admitting he was crazy about Frances.

"What're you driving at?" he demanded sharply. "If you think—"

"Guy," said Lucky wrily, "I think Frances is a swell kid. A long time ago I pulled for luck for her. And she met you, and it was luck for her. Remember how you come to be with her? Okay! I pulled for luck for Frances. Then, presently, I pulled for her to like me. That was easy.

"I went further and pulled for her to be crazy about me too, that was no go. It wasn't on the dice. If she's to be lucky and happy like I want her to be, lovin' me ain't in the layout. There's limits to what those rocks outa the craters will do. So—I'm clearin' out."

Steve frowned, aware of very many mixed and incompatible emotions. There wasn't

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much to say.

"But you're needed, Lucky!" he said honestly. "Frances and I can't do all that's got to be done, even if we have crater-stones too!"

"I know," said Lucky, "I'll be back. I'm gonna hunt me down one of those guys that reports to the fellas with planes and bombs. It'd be kinda interestin' to hear him talk, if he got confidential. I—uh—think I can get him talkative. And I'll be comin' back from time to time. Bein' crazy about Frances the way I am, don't mean hatin' somebody she does care about. Only—she's a good kid, fella! Treat her right, huh?"

He looked searchingly at Steve, and then suddenly turned on his heel and marched away. Twice, Steve opened his mouth to call him back. Both times he closed it. Then Lucky disappeared in the thick undergrowth which began to grow a bare hundred yards from the house.

He had been gone an hour when Frances woke and smiled at Steve. He was puttering about the fireplace, and his expression was grim.

"Good morning!" she said brightly. Her smile vanished. "What's the matter?"

"Two things," he told her. "For one, Lucky's gone off."

Her face went blank. Carefully and painstakingly, he repeated everything Lucky had said. Frances' face softened.

"He's kind of sweet, isn't he, Steve?"

"He's probably a better man than I am," said Steve with some bitterness. "*I* couldn't leave you to someone else because you'd be happier with them! *I* couldn't give you up even for your own happiness!"

"But Steve!" said Frances convincingly. "I wouldn't want you to. I wouldn't want to be happy with anybody else."

His expression did not lighten.

"There's something else. After Lucky left, I went poking around. I told you I was here years ago. There've been improvements. A dam across a stream half a mile away. There's an electric generator there, big enough to light this house and heat it too, in winter. And the man who owned this place must have survived the first bombings, because he tried to get set to last things out. He got hold of some supplies. Seeds, and so on. Seeds of various staple crops that could be grown in this neighborhood. He even had machines to clear the land. All looted or spoiled now, of course."

HE STOPPED. Frances watched his face.

"Well?"

"Looters came," said Steve without expression. "You've seen what they did to the house."

Frances looked about her. She'd known the place was not intact, of course. Broken-in doors. Hangings on the floor. Now she saw books flung contemptuously about. The place had been looted and fouled and smashed. It had not been fired, because it was built of field-stone. It had been ransacked for anything that human beasts had desired, but they wanted little more than food and drink and weapons, these days. They smashed or threw aside everything else.

"What happened, Steve?"

"They smashed his skull in," said Steve. "I just buried him. Not that one dead man more or less amounts to much these days. It all happened months ago. But there are looters who know about this place. They've been here. They'll probably come back. Staying here means taking a chance."

"Chance, Steve?" Frances said. "Aren't you the man who said we can't do miracles, but that we can do the improbable and the wildly unlikely and the one-in-a-million and one-in-a-billion tricks? You want to stay. I think we'd better. Maybe we can make a garden, for food, and with an electric generator and such things to work with, Steve, couldn't you set to work to—try to find out how to make the crater-stones start to build back a world fit to live in?"

"Pretty words," said Steve bitterly. "But right now the people who have planes and bombs have made us no better than beasts. Look here; I love you, and you love me. It ought to be something magnificent, something we could boast of, something to fill us with pride, but how can we get married? Hang it, human beings can't even marry any more! They can only mate. And that's not enough for the way I feel about you."

Frances went a little bit pale. Then she smiled.

"Thanks, Steve. I feel that way, too. But what would you do? Start out on a probably hopeless pilgrimage to find a surviving preacher?"

"Useless," growled Steve. "And stupid! If you're not afraid of looters, we'd better stay here. Lucky will look for us here. I've got work to do. Somebody's got to do it. Hang it, the world can't stay like this!"

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He swung on his heel, suddenly, and stamped out of the house. And Frances looked at the third finger of her left hand. There was no ring on it. She looked at it very queerly.

But presently, while Steve explored the possibilities of the electric generator, she set to work to clean house in a very housewifely fashion.

CHAPTER VIII

Echoes of Battle

WHILE driving a nail that had bent unexpectedly, Steve had mashed his finger and he could not write. So he was dictating, and Frances faithfully put down his words in the fourth of six child's copybooks which already contained a good part of a treatise on the paradox of indeterminacy.

"Indeterminacy, then," said Steve, scowling at the wall, "is merely a term for a normal state of balance among particles, caused by an equilibrium among forces. The laws of chance are the laws of this equilibrium. Variations from probability, then, are results of changes in the forces acting at a given spot and time. But as a new equilibrium is arrived at, variations from probability cancel out. Er—have you got that, Frances?"

She nodded.

"But the important thing is the way the crater-stones work, Steve," she said. "We don't know that. It still seems like magic."

"But it isn't," he protested indignantly. "It isn't even new. Rhine, at Duke University, proved that you can pull for things and change the laws of chance. And he had the devil of a time separating tests for extra-sensory perception and telepathy from tests for fore-knowledge.

"Rhine even found he could prove occasional fore-knowledge so easily that it messed up the evidence for telepathy. You see what that means? Back in Nineteen-forty-four and even Forty-three, his test subjects were making seven come too often for chance, on dice, and proving that somehow they could tell in advance what a later check-up would disclose. So what does a crater-stone do that wasn't normal scientific observation a long time ago? That wasn't text-book stuff? It's perfectly natural!"

"I said we don't know how it works," protested Frances.

"We've got blamed good guesses," he protested in turn. "Look, Frances—you've heard of sympathetic vibration and you've heard of resonances. You've held a coffee-pot when a railroad whistle or some particular note from a radio made it vibrate violently, haven't you? And you've heard of forced vibrations?"

Frances smiled at him. While she wrote at his dictation, she could not look at him. Now they were in the big living room of the house they had appropriated for their own. Steve had made stout wooden shutters—he'd torn down an out-building for material—which closed all window openings at night and not let a particle of light escape. But this was daytime, and light streamed in.

The books that had been flung about in a frenzy of destructiveness were back in place, though with great gaps where looters had burned some for fuel. There were obvious emptinesses where furniture had been, and the pieces which remained were mostly slashed or scarred in sheer wantonness.

What could be done to retrieve a feeling of normal life had been done. Quite possibly, Steve and Frances were better housed than any other two people in North America—outside of the places where people had planes and bombs.

"It works like this," said Steve firmly. "Suppose I have a violin-string tuned to the note A. I pluck or bow it. It gives off an A. Then suppose I leave it alone, but sound the same note with a pitch-pipe or another string? The first string will vibrate by sympathy, won't it? By resonance?"

"Oh, yes—and so will the octaves," said Frances. "If you push down the loud pedal of a piano and strike an A, all the A octaves up and down will vibrate too. You can feel them with your fingers, if the piano's in tune."

"Only there probably aren't any pianos left, so we can't verify that," said Steve drily. "What I'm getting at is that if I have a violin-string tuned to A and I sound a D note with something else, then if the D note is loud enough—but it has to be very loud—the string will vibrate a D. But not all of it—the length that tunes to D—the length that would vibrate if I fingered the violin to make it sound a D instead of A."

Frances considered, and then nodded and shrugged her shoulders. "Well?"

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"Something that happens makes a mental impression just as a plucked violin-string makes a sound," said Steve. "Seeing a thing happen is like hearing a note. Remembering or imagining a thing happening is like sounding a note. When—without the crater-stone—I pull for a seven to come up on dice, it's as if I were sounding an A-note for a violin-string to respond to. My brain, unassisted, can't sound that note very strongly, but it can sound it strongly enough to make a seven come up more often than it would otherwise."

STEVE paused for a moment, to find the right words so she would understand. "But the crater-stone echoes my piping little note and amplifies it," he went on. "It's like humming into a microphone hooked to a monstrous public-address system. The same hum comes out a hundred thousand or a hundred million times amplified. What I get is a note that's strong enough to force a vibration.

"With my voice I can't make a violin A-string sound a D. But with a speech-amplifier I can. With my mind I can only make things more likely. With a crater-stone, using the energy of breaking-down matter to amplify what my mind does, I can make happenings; if they're possible."

"And sometimes," said Frances, "sometimes the trick doesn't work because—"

"Sometimes," said Steve, "I can't make an A-string sound D because it's broken. Or maybe it's tuned to E, and none of it is long enough to vibrate a D. Sometimes a happening—well—isn't on the dice. All clear now?"

"If you'd dictate something like that," admitted Frances, "it wouldn't sound quite as much like gibberish as your technical manner. But Steve—"

"What?"

"We haven't anything for dinner."

"We'll go look in the fish-trap," he told her.

Two or three minutes later they emerged from the house together. Neither of them ever left the building alone, or unarmed. Their arms consisted solely of the tiny automatic Steve had given Frances within an hour of their first meeting, and the revolver from the plastic suit-case. Both were very short of shells.

Of course, both Steve and Frances carried a crater-stone each. Steve had fashioned holders for them out of a bit of lead drain-pipe, but he could not discover that the crater-stones had a normal rate of disintegration capable of producing burns.

Apparently the enormous bombardment of uranium by the radiation of an atomic bomb produced a substance completely new in all its qualities. In all likelihood, for example, it was capable of resisting even the temperatures of an atomic explosion.

"If my father hadn't been killed," said Frances presently, "and if I knew him, by this time he'd be trying to make an artificial device to do what the crater-stones do."

"Do you think I'm not working my head off at that?" demanded Steve. He added bitterly, "But I'm working practically at random. I've got to try ten thousand or a hundred thousand things until I hit on it practically by chance—"

Then he stopped and swore disgustedly. "I'm a half-wit! By chance! And the crater-stones control chance! If I could find out that this house was intact, without seeing it, I ought to be able to find out if a given line of experiment will turn up what I want, without trying it. All I have to do is pull for it to work, and if the crater-stone warms up—"

They came to the place where the fish-trap was. A dam a hundred feet wide held back a small brisk mountain stream and made a pond all of half a mile long. Steve had put a distinctly unethical fish-trap in it, which every day produced perch and trout sufficient for their needs.

In odd spots, too, he had tiny crops growing. The looters had taken everything they could use, and doubtless intended to spoil the rest, but spilled corn-grains remained for Steve to plant in little clumps of no more than half a dozen stalks at any one place.

In the looted pantry, too, there had been some rotted vegetables. Tomato-seeds were salvageable from a dried-up mess on the floor. With electric power for warmth, and a snug house, Steve planned to move some plants indoors and have food during the cold weather by hot-house cultivation.

He fumbled in the fish-trap and hauled out a good-sized trout by the gills. He reached in again, trying to corner another of the wildly darting, imprisoned creatures.

"I'm a half-wit!" he repeated bitterly. "Of course I can duplicate what the crater-stones do. I can practically make them tell me how. I can work out a line of research

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and see if the answer's there by pulling for it to turn up. If it can, the crater-stone will warm up and make it sure I'll find it. Oh, I'm an imbecile!"

HE STRAIGHTENED up, and Frances raised one hand. She had turned her head and was listening with a desperate concentration. She was a little bit pale.

Steve froze. He listened, too. Then he quietly put down the still-flapping fish and drew his revolver. Both of them, then, waited very tensely.

Two hundred yards away, a head appeared. There was a blood-stained bandage about it. It was unshaven and haggard. A second head. A third. They stared at the house. They conferred. Three men broke cover and ran stealthily toward it, but dragging their feet as if at the last gasp of exhaustion.

One of the men carried a shotgun. Another carried a six-foot bow. The third had an unwieldy contrivance which, at a guess, was a cross-bow made with automobile-spring leaves to hurl its bolt. All three men were ragged. Each had been wounded and bandaged and wounded again. They ran heavily toward the house, dodging exhaustedly behind trees to cover their advance.

"Hello, there!" Steve called sharply.

Frances started a little and unconsciously moved closer to him. The three stopped as if shot. They wheeled. Then they came toward Steve. The man with the shotgun held it ominously ready. The man with the bow had an arrow to the string. The cross-bowman had the wire cord of his contrivance drawn back, and doubtless a bolt ready in the groove. But as they came closer to Steve, they bunched as for mutual support. They moved with the air not so much of menace as of desperation.

"The devil!" said Steve, looking from one to another of them. "You're honest men. Wonders will never cease."

"Sure we're honest men," one of the three said in a choked voice. "How many cutthroats have you got hidden, you that stand there and laugh at us!"

"No cutthroats," said Steve. His eyes narrowed suddenly. "You're scouts, eh? Going on ahead to try to find—"

Very, very thin and far away, a high-pitched yell came through the bright morning sunshine. After it came the muted, distant sound of a shot. The three men turned their heads from Steve to that sound. One of them sobbed.

"Blast 'em! Oh, blast 'em! Come on, let's get killed!"

He whirled.

"What's that?" Steve snapped. "Your rear-guard? How many of you?"

"Fifteen men and the women and kids," the bearded man with the shotgun said heavily. "There's a gang of guerillas been chasin' us four days. They got near half of us. Now they'll get the rest."

He turned drearily to go where a thin, shrill, triumphant howling rose. There were two more shots. The bearded man's face worked.

"Get the women in the house," said Steve fiercely. "It's stone. They can't burn you out. We'll hold 'em off there."

"What with?" panted the crossbowman, despairingly. "Might as well get killed right off."

"Come along, Frances!" said Steve angrily. "We'll find the women, whoever they are. You lead 'em to the house and barricade the doors and windows. I'll take the men and we'll see what the crater-stones can do."

He was already running with her, hand in hand, in the wake of the three wierdly assorted individuals who now toiled exhaustedly toward a confused and intermittent sound of battle.

Where they ran all was quietude and peace—a bright summer sun drenched trees and grass and weeds with shimmering golden light. The small valley below the house, and the forests which covered the hillsides, were empty of any sign of life save the green things themselves. Insects sounded everywhere in the bland and warmth-intoxicated shrilling of midsummer. Somewhere a bob-white quail called tranquilly.

But a man's death-shriek came faintly from far away. There was another shot in the distance. Steve and Frances dived into the trees after the drearily running trio they had intercepted.

"What can you do with the crater-stones?" asked Frances, between panting breaths.

"I don't know," grunted Steve, pounding on. "But they're honest folk, those three. They bunched when they came close to us instead of spreading out. If they've got women with them, they're what the guerillas are after. The worst of it is, there'll be somebody with a pocket radio among the guerillas, most likely. There was in the gang I met, once upon a time."

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Yells—far ahead, but nearer than they had been. They saw a scared, flurried movement in the underbrush. Women.

"You mean—if we help beat off—the guerillas," panted Frances, "the—people with planes and bombs will—bomb us?"

"That's the idea," Steve growled. "Take the women to the house and barricade it! I'll be back."

"Be careful!" she called desperately after him. "Please be careful!"

But he was gone, diving through brushwood, jumping fallen tree-trunks, running through thick woods toward an inchoate, spasmodic tumult in which men fought like beasts and some died quite otherwise. There were two sides in that battle. Steve was known to neither. Each was likely to think he belonged to the other side.

CHAPTER IX

Besieged

NIGHTFALL descended and the battered, oak-beamed living room of the house was very dark. Children slept in the abandon of absolute exhaustion close by it. There were other figures lying on the floor. Women tended some of those figures. There were three women with babies, which they held tightly in their arms. Some men squatted against the wall, crude weapons at hand, drooping in utter weariness.

Frances found Steve peering from an upper window. There was a great fire burning a hundred and fifty yards down hill. There were figures about it. There was yapping talk coming from the fireside.

"My guess," said Steve, growling, "is that somebody's trying to talk them into making a rush and they haven't much stomach for it. We did plenty of damage in those woods!"

"I saw you were safe," said Frances uneasily. "But I've been trying to help the women, and some of the men are wounded. I was so afraid the people you were trying to help would kill you."

"I was pulling they wouldn't," said Steve drily. "And there was a shaving-kit in those suitcases, remember. I was shaved. To our friends that meant I was civilized. The guerillas don't bother."

Frances peered out the window toward the leaping flames. At least, she seemed to. Actually, it was an excuse for being comfortingly close to Steve for a moment.

"Do you think they'll try to storm the house?"

"Probably," said Steve reflectively. "It's a long arrow-shot to the fire. But maybe the crossbow could reach it. Get that chap with the crossbow, Frances. Tell him to come up here. And whoever has the strongest bow."

"But—Steve! You told Lucky and me that you warned some people once that the guerillas were coming, and they beat off the guerillas, and—bombs fell and wiped them out."

"Yes," said Steve curtly. "Guerillas and looters are wiping out the last traces of civilization, and so long as they're winning, the people with planes and bombs don't interfere. But if anybody is strong enough to stand off looters, somebody among the looters talks into a pocket radio and a plane takes care of the situation. Economical! How to destroy a civilization: give bandits a free hand and use bombs only where decency is able to defend itself! Go get that crossbowman and somebody with a strong bow, won't you?"

She hesitated, and he kissed her, there in the darkness by the open window.

"We're chaperoned, now," he said drily. "Go on!"

She went away, feeling her way down the unlighted steps to the great living room with its feeble flickering ruddy light. When she came back, two of the fugitives came with her.

"The guerillas are holding a council of war, down by the fire there," Steve told them. "They're working out plans for storming the house. Can you drop an arrow or two or a bolt or two among them?"

"I ain't a expert," the bowman said wearily. "I made a bow and arrows because there wasn't anything else to shoot with."

"And as for me, I thought this crossbow would be good," the crossbowman admitted. "And I did get a couple of guerillas. But I'm no sharpshooter."

"Try it just the same," Steve urged. "Just let the thing fly high and fall near the fire. I guarantee results."

Frances caught her breath. He could. An arrow shot into the air, however inexpertly aimed to fall among the men about the campfire, would have one chance in a thousand or two of striking one of the figures. And if one had a crater-stone which controlled chance,

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that one-in-a-thousand chance was the only one which could happen.

The bowman loosed an arrow, aimed high and pulled all the way back. There was a long, long wait. Then a sudden startled hubbub about the fire.

"It hit," said Steve. "Now you two, take turns and let off as many as you can as fast as you can. I think you'll be lucky."

The crossbowman loosed a bolt. The bowman, another arrow. The crossbowman again. The archer. Yells and screams and howls of fury came from the fire circle.

There was no suspicion that the missiles came from the house. The fire was too accurate and too deadly. The guerillas thought they were being ambushed from the woods and undergrowth. They dived away from the fire and sought their attackers. They found—sometimes—each other.

A HALF hour later there was a lurid red glow over a hilltop, and Steve raged impotently.

"They've fired the generator-shack!" he told Frances bitterly. "And I'd figured we'd start using electricity in a day or two. Maybe they'll wreck the dam."

He stood irresolute a moment, and then fury got the best of him.

"I'm going out," he said savagely. "I'm safe enough; we've got a date for five years from now, with Lucky."

"We'll—be together in five years," said Frances shakily, "but we won't necessarily be alive, Steve! If anything happens to you—"

"Use the crater-stone," he told her. "I'm going out!"

He went downstairs, still raging. He summoned two of the newcomers and had them stand guard by a repaired, battered door—with no faintest light behind it—while he opened it silently and slipped out into the darkness.

Despite his fury, he was cautious. He lay close behind the wall for a long time. He heard no sounds which were not obviously natural. No one massed for an attack, certainly. After a long time he moved away from the building. He found nothing, save one groaning figure which he avoided.

An hour after his first emergence, he heard a low muttering sound. He trailed it, moving with infinite caution. He knew the ground about the house now, and he was able to progress with Indianlike silence.

He found a man. One man, alone. That one man muttered quietly, and stopped as if listening for a reply, and muttered again. He was not speaking English. Steve could not hear the syllables clearly enough to tell what the language was, but he knew that it was not English.

There was a surge of frenzied hatred which swept over him. Then he lay still. Very still. He waited until the conversation was ended. There was a tiny clicking sound, and then a stirring where the talk had been. A man moved away. One man only.

Steve let him get well on ahead, and then trailed. A mile on, he grew deliberately careless. He limped. He crashed through bushes. He made whimpering noises to himself. He heard the sounds of the other man's progress stop. He blundered on, moaning a little, and limping more markedly than before.

Then he heard a thrashing. He snarled in a high-pitched, scared tone:

"Who's that?"

"Me," said a voice in the darkness, somehow amused. "You hurt?"

"Yeah!" snarled Steve.

He seemed to stumble and pitch headlong. The other man came to him as he rolled and grumbled. Steve got his legs under him. He was crouched when the other figure loomed over him. He rose, and the little foil struck aside a branch and slid into flesh with the curious sliding resistance Steve had learned to know.

Three minutes later he had found a small instrument which could be concealed under a man's armpit. He reflected with some grimness that the discovery justified his unwarned attack, which would have been assassination under other circumstances. But atomic war allowed of no ethics at all.

This man had been with the guerilla band. He'd lingered after his fellows fled. They thought they were attacked by deadly figures from the wood. They could not imagine, of course, that arrows and crossbow bolts could be shot with such absolute accuracy from the house. The chances against every missile finding its target would have been too great to believe in, and they knew of no solution to the paradox of the indeterminate. So the guerillas had fled into the darkness, seeing enemies behind every tree-trunk, and frequently finding them.

Only this man had remained until all was

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quiet, and then he'd fired the dynamo-shed as a minor blow, and later still he'd used this pocket microwave transmitter. He was a spy for the people with planes and bombs, guiding guerillas to loot and burn and kill, so that any trace of human life above the savage stage would be eradicated.

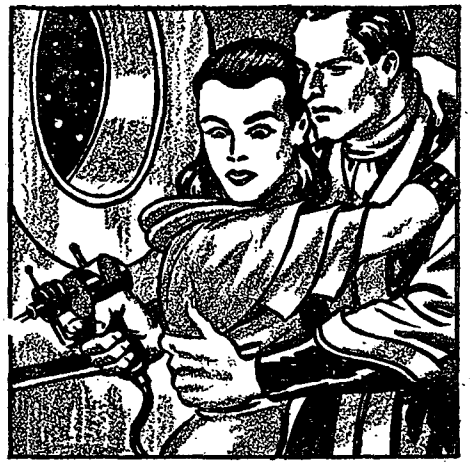
The burning question was, would he have reported a defense by people civilized enough to need bombing, or on a strictly barbaric level? Would he have reported the attackers from the dark as another band of guerillas who would undoubtedly carry out the mission the defeated looters had in mind?

BACK at the house, Steve consulted with Frances. He showed her the little transmitter and no less than two automatic pistols and a precious store of cartridges he'd found on the spy's body.

"They were routed with arrows," he told her, frowning. "They also thought they were finding enemies all over the woods, though they were actually fighting each other. The logical thing for him to report would be that his gang ran into another, which chased his gang off to do the murdering and raping his mob planned, themselves. But I think

[*Turn page*]

THE LOST YEAR OF LIFE!



ONE August morning William Boyce was walking south of the library on Fifth Avenue, in New York, past the stone lions that guard the stone steps—and then suddenly he was in a hospital bed in Bellevue, one year later!

Was it amnesia? Boyce tried to believe it was, tried to slip back into the familiar grooves of life and pick up where he had abruptly left off a year ago. But it didn't work. What had happened to Boyce was something more than amnesia!

He was drawn irresistibly to that lost time—because of the crystal he had found in his pocket upon his release from Bellevue. It was not large, but it was cut strangely and it was perfectly transparent. And he felt uncomfortable when he did not have it in his pocket. He could not have said why.

Then—a familiar room brought back the memory of a mysterious, elusive girl—and the crystal, held before the fireplace, reflected strange and fantastic patterns. Suddenly Boyce found himself transported to a world of sorcery—a country of inverted time! And there he set forces into motion which will astound you—while opening new vistas of imagination and scientific speculation! Look forward to a masterpiece of science fiction, packed with breath-taking, pulse-stirring surprises!

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we'd better move away eight or ten miles for a week or so, just in case this house is bombed."

Frances shook her head.

"We can't do it, Steve. One of the babies is sick. Desperately sick. And two of the men couldn't walk ten miles. All of them are completely worn out. They just can't go any farther! They've been fighting a rear-guard action for four days already. They're exhausted. So—I used my crater-stone. I pulled for it that the baby'd get well and be playing in the sun in front of the house day after tomorrow. And the crater-stone warmed."

Steve considered.

"Then it will happen. Crazy, isn't it? If the baby can play in front of the house day after tomorrow, there can't be a bombing. Evidently it's on the dice that we can escape for awhile, and the possibilities which would prevent it are blocked off now. But I wish you wouldn't use those things, Frances! They must be radioactive when they warm up. So I've got to figure out a way to do what they do, without them."

"I wish you could, Steve. If I could understand, it wouldn't seem so much like magic."

He ran his hand through his hair, in exasperation.

"But it's not magic. It's physics! It's no more magic than radar. If you'd read all the way through my copybooks you'd understand it perfectly. It's simply forced resonance. We picture something in our minds and the crater-stone amplifies it, and the happening we imagine—if it exists in a possible future—gets charged up with that extra energy, and the equilibrium of things in general can only be restored by that thing happening. That's all. It's perfectly simple."

He looked longingly at the tiny micro-wave set.

"I'd like to look this thing over, but I need good light and it's hours until dawn. Go get some sleep."

Himself, he went out again and to the still-glowing embers of the generator-house by the dam. The dynamo was ruined. The reek of scorched insulation mingled with the stinging smell of smouldering wood. Steve was too disheartened to try to quench the embers with water from the pond.

"We're savages," he told himself savagely. "We fight with bows and arrows. We've no lamps—not even candles—and our only light is an open fire. Those crater-stones are simply freaks. Maybe Frances and I can keep going with them, but we can't build up a civilization with a few hunks of accidental mineral. Now we've a pack of refugees on our hands and we can't feed them, and the electricity I figured I could tinker with has gone to the devil!"

He heard his own voice, complaining and querulous. He stopped.

"Maybe I'd better go out and cut my throat," he said wryly. "I'll cart some fish back to the house and poke into that radio set as soon as it's light."

He did. There was no point in trying to capture individual fish. He hauled the whole trap out of the water and slung it over his shoulder. One of the younger fugitives had been sent scouting. He helped Steve bear the load. Steve had noticed the boy—a gangling youngster of sixteen or thereabouts.

"Bob," said Steve. "Do you know anything about electricity?"

"I had a television set," the boy told him awkwardly. "I put it together myself, and it worked."

"M-mmm," Steve began. "There's a generator up by the dam at the end of the pond. It did make electricity to light and heat the house. Those fellows last night burned down its shed. It looks like it's ruined, but maybe some of the inner layers of wire can be salvaged and we can rewind it by hand. Want to take a look at it?"

"Yes, sir!" The boy's face lighted up.

"Go to it, then," said Steve.

WHEN he reached the house, dawn-light was beginning, to the east. He turned over the fish to a competent-looking young farmer, on sentry duty near the house. And Frances had not gone to sleep. She was watching for him. She slipped her hand into his.

"You seemed so uneasy, Steve, when you went out. Do you feel better now?"

"Outside of various problems," he said drily, "such as how to find food for all these people, and how to make a ruined generator generate electricity, and how—without information or equipment—to make something that will do what the crater-stones do so we can understand 'em and make the most of them, and how to keep guerillas away without being suspected of holding on to the decencies of life."

He almost ran out of breath.

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"In short, outside of feeling that there's not much use in trying, I'm all right."

She bent close and whispered in his ear.

"Thanks," he said moodily. "The feeling is mutual. But I insist that until I'm something more than a witch doctor doing mumbo-jumbo with magic stones, until I'm a civilized man again— Oh, blast it!" Then he said abruptly, "The light's good enough. I'm going to look at that pocket radio."

She ran indoors and brought it to him. He regarded it sourly.

"Only a spy should ever see this. So just possibly, in case a spy was killed by accident, they might have tricked it up. I'll be a little bit cagey."

He moved a hundred feet away. He worked busily, while she watched him. Presently there was a sharp popping sound and she gasped. But he waved his hand reassuringly. After a few moments he came back.

"Thorough, systematic people, our friends with planes and bombs! If you open this thing the obvious way, it explodes. I cut it open from the back, so it didn't. That popping you heard was the detonator-cap, after I'd taken out the explosive."

He spread out the opened small contrivance. There were tiny, almost microscopic radio-tubes. There were infinitesimal conductors and inductances. A minute battery. And there were two dials beside the midget microphone and miniature speaker.

He regarded it for a long time.

"Nice," he said at last, ironically. "Wonderfully nice. It's a microwave set. If a plane's high enough in the stratosphere, this can contact it even several hundred miles away. They beam the microwaves by using the foil speaker-cone as a reflector. Look! This dial is set to a fixed frequency. It points to the source of a signal of that frequency only. The odds are that it's to enable spies to get into touch with each other on the ground and cooperate in their deviltry. Pretty, eh?

"This dial points toward any other electrical disturbance. If we had that dynamo running, any spy could get a line on it. Or any internal-combustion engine could be spotted or anything at all that made a spark now and then. A good way to locate any small oasis of civilization, eh?

"If we had electric lights or current or even used a flashlight, sooner or later some spy would be led to us with absolute certainty, either to bring guerillas to wipe us out, or to arrange for bombs."

He stopped and laughed without mirth.

"You see how that changes the picture, don't you? If we use electricity in any form we'll be spotted. If we're spotted we'll be destroyed. If we defend ourselves against looters, we'll be bombed. If we don't, we'll be killed.

"If we hang on without trying to keep anything of civilization, we'll forget it all. If we even try to be decent, we'll be hunted down by all the scum of the earth, aided by every technical device that ingenuity can contrive! Isn't it a picture, now? What price crater-stones against that set-up, Frances? Want to go out with me now and let's cut our throats?"

CHAPTER X

Stalemated

IN ALL there had been twenty-two men originally, and eighteen women, and almost as many children ranging from babies in arms to Bob, the television enthusiast who had helped Steve carry the fish. The day before there had been fifteen men left. Today there were eleven. And of the eighteen women only twelve remained.

In their hearts burned hatred so terrible that it was a corrosive hurt. The hatred was for guerillas, of course, but also it was directed against those unknown, unseen, unidentifiable people who had aeroplanes and atomic bombs.

The refugees knew that there was a link between the guerillas and the bombs. Wherever honest folk fought to hold to everything that separated men from animals, looters turned up to destroy them. If the looters failed, bombs came screaming down from seemingly empty sky.

Perhaps not all the guerillas knew of the link. Perhaps only chosen, talented leaders had this cooperation. There was no need to encourage most looters. There are always some people who seize upon any catastrophe to behave as beasts, and in the atomic war it was an advantage to be a beast. Honest men tended to group together for mutual aid and protection.

But under the conditions of atomic war, such assemblages only made more vulnerable targets for bombs, or objectives for guerilla raids. And surely there was de-

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tailed information given somehow to make murder and rapine the easier. Leaders had sprung up with intuitive knowledge of spots where food and victims for amusing brutality could be found. Steve now had evidence that their intuition came in small instruments, in microwave communication sets.

The people now tacitly accepting his leadership had come to the same conclusion without his definite evidence. They had been a group of farmers and their families, closely knit by blood-ties, who had not followed the common urge of normal folk.

They had been fiercely independent and their small holdings were remote from the rich lands the looters preyed on at first. They were watchful. They were prudent. They closed ranks when the world collapsed about them, and tried to go on sturdily as before. Their houses were close together, but did not form a village. For a long time they escaped notice. But they used ploughs, and ploughed land shows up clearly in air-photographs.

A single ragged wanderer appeared, begging food. They gave it to him, and now bitterly regretted that they did not kill him with torture, instead. Because he went away, vowing gratitude, and two weeks later looters converged upon their community from three directions.

Watchfulness prevented surprise. The farmers grimly conceded to themselves that they could not fight all three bands. They attacked one, furiously, and almost wiped it out. They acquired fresh arms and attacked the second looting band with even greater success. The third retreated precipitately, and then bombs fell from the sky and their farms were wiped out.

Their families should have been wiped out too, but the men had moved their women and children to hiding, in case they failed in battle. But now they put two and two together. The bombs and the looting bands were too closely connected to be accidental. In any case they had nothing left but themselves and a few head of livestock.

They'd started a desperate migration for some other isolated place where—they vowed—no hungry stranger would ever fail to be killed immediately. But their animals left a broad trail. They were sniped at because the animals were food. They were ambushed because they had women with them. Word seemed to pass in every direction ahead of them. Their progress became a running, hopeless fight.

Their last animal had been lost four days before. When Steve sighted their advance-guard—only three men and only one gun among them—they were at the limit of their endurance.

When Steve held a council of war with them, the signs of their ordeal were plain.

"We can write ourselves off as dead and sit down and die," he told the men cynically. "Quite likely that will be the end of it, anyhow. But there's a chance for us to do some damage first. And there's been through all history an odd series of events that may be more promising than it sounds. Everything that's ever turned up to harm humanity has ultimately been tamed and put to use.

"Men were probably as afraid of fire, a million years ago, as wild animals are now. But they tamed it. Men were deadly afraid of gunpowder. It killed enough people! But they tamed it and used it for blasting coal and metal ores, and made roads and tunnels, and they converted cannon into internal combustion engines, and in the long run explosives did more good than the harm they'd caused.

"Even lightning was terrible, once, until it was tamed and made electric lights and television and so on. Everything that ever killed men has sooner or later been tamed. But atom bombs have seemed different."

THERE was a growling noise. For three hundred miles they'd fought their way through human beasts the atom bombs had made best able to survive. They hated the beasts, and they hated atom bombs and those who used them.

"There's just one chance, and it's a slim one," Steve said, more cynically than before. "Lucky Connors found something that atom bombs make, which may mean their taming if we can work it out."

He explained, as simply as he could, what the crater-stones were and what they did. He met blank incomprehension. He tried again, and ran against the same inability to understand.

"They make accidents happen the way we want them to," he said helplessly. "Look here! All of you take pencils, or get some charcoal from the fireplace. Each of you write down a number, without consulting anybody else. Any number. Up in the millions if you like. I'll use a crater-stone to make you happen, by accident, all to write

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the same number."

There was skepticism and impatience. But one man wrote, and another, and another. Then one man showed his number to another. It was 397546872. The second man displayed his. It was the same. A third man. A fourth. A fifth.

But it seemed like a conjuring trick, of no importance.

"Then we'll go outside," said Steve, when he saw their impatience, tinged with unease. "Somebody bring a bow and arrow."

He made a mark a good hundred yards away. Behind a tree. He had the bowman shoot over the tree. It hit the mark. Again and again and again.

"Call it a lucky stone if you like," said Steve angrily, when cold eyes turned toward him. "Go look around the fire where those looters were last night. Every bolt and arrow fired from the house hit one of them! There'll be dead men down there, and you'll be glad they're dead. And there are other dead men in the brush, here and there."

Three of the men stayed, watching Steve dubiously while the others went down to see. There were shouts. The men downhill beckoned to those about the house. All went to look. One heavily bearded man stood clenching and unclenching his hands above a body.

When Steve drew near, he turned and spoke in a choked voice.

"This man killed my son in the fightin' a week ago," the farmer said. "I saw't. I don't know how you got him killed, whether by witchin' or what, but I don't care if the devil done it so it's done! And after all, we're alive because of you. We'll listen again and try to understand, even if it's witchin'."

There were eight bodies beside the burned-out fire. Three of them had guns. Two had pistols. There was other booty.

"Better go back to the house," said Steve to Frances in a low tone. She hesitated, then walked to a discreet distance, where she waited.

The slain were stripped. Clothes were precious.

"They fought each other in the dark, too," Steve observed coldly. "There should be some more bodies. We may pick up more guns. We'd better look."

They did look. They went back to the ruins of the generator plant and searched, and found nothing except a dagger which Steve picked up. Every additional weapon was valuable. One farmer stayed close to Steve, as he threaded his way through the rubble. Frances followed and stood near a shattered fountain while the hunt was going on. She gave a sigh of relief when the explorations were finished.

Steve returned to the house with the men. They felt doggedly satisfied. Some were asking questions. Clumsy, groping questions. What Steve had to say in the way of explanation went counter to everything that had been their normal way of thought—as it had, in a sense, been unusual to him.

But at least Steve's methods, however inexplicable, passed the pragmatic test. They worked. There were nine new firearms in their possession. They credited the gain to Steve. And there were two men, in particular, who pressed him with desperate queries such as men only ask when prepared to believe anything if belief will allow them to hope. As they went into the house, Frances heard him say doubtfully:

"We'll try it and see."

They ate, mostly of fish. Afterward, Steve and the two men went off alone. Then the two men came back, borrowed extra cartridges, and plunged into the woodland back along the line of their flight. And Steve stood frowning in a harassed way after them.

"What is it, Steve?" Frances asked.

"Two women and a couple of children whom everybody believes dead or worse," he answered. "They must be hiding out somewhere back yonder. These men wanted to know if I could work a miracle. I said no. They asked if I could help get anybody who might be alive but separated from them, found and brought back here. I said maybe."

FRANCES was puzzled. She looked at Steve.

"What did you do?" she asked.

"I just tried to find out what's in the pattern of possible futures," Steve explained. "I pulled that the two men should find the missing members of their party. The crater-stone warmed. It was possible, and it was sure. I pulled that they'd find them the first day. That wasn't on the dice. The second day. It was. Then I tried this and that, trying to fumble out how they could find them, by whether the crater-stone warmed up or not. Actually, I was playing hot-and-cold, the kid's game. They've gone off. And they'll find two women and at least two kids and bring them back, and then they'll think I'm a

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spiritualist medium or something! Maybe they'll want to build a church around me! And doggone it, I don't like the idea of pulling off miracles and finding lost people and junk like that. It's—phony!"

"Then why not make an understandable contrivance that will do what the stones do, and explain how it works?"

"If I use electricity, a spy will pick up the radiation," said Steve bitterly. "If a spy doesn't, a plane up in the stratosphere will! Electricity means civilization, and civilization means bombs. I'm going out of my head, Frances! Up to now, people have excluded chance from all scientific work. They had to! If your results could have come by accident, they were no good, because you couldn't repeat them. But now we've only to ensure that chance *can* produce a given result to get it every time. I've got to experiment with this stuff, Frances. I've got to! But if I try anything at all I'll bring a bomb."

The sixteen-year-old Bob came to him, bashfully but with his eyes alight.

"I can fix the dynamo in two days, sir," he said triumphantly. "Only two or three layers of wire were ruined. Shall I start?"

"No, Bob," said Steve gloomily. "I'm licked. We daren't use the dynamo. It's luck we never tried. But—look here! I feel sort of humble. I'm a trained physicist and my mind runs in a groove. I got out of it once, but apparently I'm back. You aren't old enough to think in ruts, yet. Let me tell you my troubles. I'll see if you can suggest something."

Frances went way and left him talking to Bob, who was sixteen years old and had once made a television set which worked. Steve had diagnosed his difficulty quite clearly. He had been trained to think in a specific fashion, and the crater-stones called for a different sort of thinking altogether.

All the experiments of physical research had always been designed to exclude, rigidly, the element of chance. Accident was anathema in a well-conducted physics laboratory. Even Steve's painstaking inquiry into the paradox of the indeterminate had come about because physics, as an exact science, had reached a stage of delicate measurement in which indeterminacy—chance—turned up in spite of all efforts.

Steve's treatise had been begun, in fact, in the vague hope of finding some way to eliminate chance in the behavior of even small numbers of electrons or other particles.

But the crater-stones did not eliminate chance. They controlled it. And Steve could not reserve his entire professional habit of thought overnight to take full advantage.

So he talked to the boy, Bob, quite humbly, because the boy would understand more than most adults and might be able to do a mental about-face more quickly than Steve himself.

Two hours later. Steve walked into the house where Frances helped a mother with a sick baby. He picked Frances up, lifted her off her feet, and kissed her exuberantly.

"We've got it!" he told her explosively.

While men and women stared at him blankly, he kissed Frances soundly again, and marched triumphantly out of the house once more. His voice rose out-of-doors, calling for the sixteen-year-old Bob.

CHAPTER XI

New Science

LESS than two days later, Steve turned on the electric lights in the house. An hour afterward, he had turned on the electric heating-units in ducts behind the walls, so that the house became warm and dry, and the slight mustiness of the air—as a result of the building having been so long untenanted and unaired—began to lessen.

Before the day was over, he had drawn up plans for beds of humus in the attic upstairs. He would put lights and heating-elements in the attic and use it as a hot-house in which to grow food all winter.

There would be roofed-over sheds in the nearby woods, built under cover of the green leaves, which by the time of bare branches would be indistinguishable from the ground around them. They also would be warmed and lighted and would grow food. There would be an underground passage from the house to the wood—dug as a ditch, at night, and roofed over as it was dug before dawn of every day so its construction could not be seen from aloft—which would prevent a trail from being made about the building.

The boy Bob worked with absorption and intense authority, supervising all electrical work. The dynamo would not be used as a generator. An easier method had been found.

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Steve, himself, vanished from view. He had taken a small room for his own work, despite the crowding of the building by all the newcomers. In it he labored extravagantly with utterly improbable materials—stray nails from the burned-out dynamo-shed, and salvaged wire from the damaged dynamo, and even bottles from what had been the garbage-disposal area of the house's former occupants.

Time passed and his labors grew with them. He became bright-eyed and feverish. Sometimes he stopped and held his head in his hands.

Frances heard him talking to Bob when—days later—she went to insist that he eat something.

"Faraday founded a science in three days of experiment," said Steve, "and Fleming remade a science when he stopped to notice what bread-mould had done before he heaved a tray of agar-agar into the trash-can. You and I, Bob, are trying to found an entire new civilization in a couple of weeks, and it's just crazy enough to make my head ache from time to time. I could do with about a month's sleep right now."

Frances produced a tray of food and insisted that he eat.

"If food will keep me awake, I'll eat anything," said Steve dizzily. "By the way, how is the food situation?"

"We'll do," said Frances evasively.

He shook his head, as if to clear it, and looked at her sharply.

"My dear, I think you're lying. When did you eat last, and what was it?"

He stormed when he found out that she had tried to give him all the food she would normally have, herself, in a day. It was inevitable, of course, that nearly thirty people encamped in the house made food supplies short. There were fish in the pond, to be sure. There were some rabbits and small game in the woods. And the women—after due scouting by the men—did gather occasional mushrooms and hickory-nuts and other edible wild things.

But there were not animals enough for the party to support itself by hunting, even if they'd had ammunition to spare, and there were no crops to be gleaned. Nothing had been planted anywhere this year, save in isolated communities like the one these folk had come from.

"The answer is that I am an ass," said Steve. "I've been doing research when I should have been applying what I found out day before yesterday. I've been working out schemes instead of keeping the pantry filled. If Bob, here, will put together a few wires. . . ."

He had worked too hard. As long as he kept going, he was all right, but once he stopped and tried to turn to something else, exhaustion overcame him. He tried to sketch what he had in mind, but he yawned uncontrollably in the middle. But the boy Bob leaned over his shoulder.

"I think I get it, sir," he said anxiously. "Let me try making it?"

"Go ahead, Bob. A-a-ugh! Put it together and I'll charge the generator-wires with the crater-stone and we'll have something to eat. . . ."

THE last of his words slurred. His eyes closed. He was asleep. In his absorption in the experimental work in hand, he'd gone far beyond the stage of being worn out. He slept like a log, and Frances watched jealously over him, even when the boy came anxiously and would have waked him for additional needed directions.

He slept for eighteen hours straight while Frances guarded his rest. But she had dozed off, herself, when he waked. She felt his eyes upon her, and started up. She smiled at him.

"You want something, Steve?"

He did not seem inclined to stir.

"N-no," he said slowly. "I'm rested now. I've been awake for some time. I've been watching you. You've had a rotten deal, Frances."

"I'm doing all right. Everything's all right. You remember the baby that was sick? It played outdoors yesterday."

He shook his head.

"I think I'm a nut. I drag you about the country until I find a place for you to stay in relative safety. Then I drag in thirty assorted people to increase your danger, and you go on short rations while I spend all my time puttering and seem to forget you.

"Next you try to make me eat the food you should have yourself, and I raise Cain and go off to sleep in the middle of everything, still without seeing that you've enough to eat. And then you sit up by me in case I want something. You have had a rotten deal from me."

"I'd have been dead, and very horribly, but for you, Steve," she said quietly. "I was

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half-starved when I met you, and it's only been the past couple of days that we've been on rations. And I'd been hiding from looters in sheds and under leaves and—everywhere, and now I live in a house which has electric lights and books, and there are people around me that I'm not afraid of. And sometimes you actually notice me, Steve." She smiled at him, her eyes crinkled. "Actually, you sometimes notice me! I'll do."

He sat up and grabbed at her arm.

"Notice you? What the devil do you think I'm working for? Why do you think I want to have safety and civilization and deceny back in the world again?"

"I couldn't guess," she said with an air of breathless interest. "Do tell me, Steve! Why?"

He seized her in exasperation, and she smiled at him again, and he kissed her. And they sat on the floor together, with his arm about her shoulders, and she looked perfectly contented. Even when, some ten minutes later, he was saying absorbedly:

"The kid pointed out that extremely short waves won't go around sharp corners and can't travel through water. So we fixed our switches so they give off nothing but extremely short stuff when they are opened and closed, and surrounded them with water. Not too tricky, you notice. I can't help thinking as I was trained to. The children in this gang will run rings around me as scientists when they're a bit older, with the new stuff that's bound to come."

Frances listened, but she looked most often at Steve's hand, tightly holding her own. He went on zestfully:

"With the trick of exploring the pattern of possible futures, and finding out what's possible and what isn't, it actually took me only two hours to work out a gadget to do everything the crater-stones will do.

"I can put any amount of power into it. But I needed electricity to try it, and the dynamo was a wreck. So the kid came up with an idea. One of the most annoying effects of indeterminacy is the shot effect, the thermal noises you get in high-gain electronic equipment."

Frances didn't understand but she didn't let Steve know it.

"How can the difficulty be overcome?" she asked.

"Free electrons, roaming around in a wire, by pure accident sometimes pile up at one end," Steve went on. "When they do, that's an electric current. The kid said those currents are accidents and could I make them when I wanted to. And that was all I needed. Of course I could! I took a bit of wire and used the crater-stone. All the electrons in it could only move toward one end, as if Clerk Maxwell's demons were on the job. Of course, that cooled off the wire. And of course it gave a current!"

HE LOOKED at her triumphantly.

"Then I wondered if that accidental condition could be made permanent, and it could. After I've treated a bit of wire, the electrons can only travel in one direction in it, and so they do. They pile up, new free electrons form where they came from, and we have power, the wire gets cold and absorbs more heat to produce more electricity, and it's a D.C. generator with no moving parts, that needs no fuel, and that will keep on working till the cows come home. We'll never worry about fuel any more. We can run machines and automobiles and ships and airplanes on heat we take out of the air. Sunpower, when you think of it. That's a good first step toward a new civilization."

Frances smiled warmly at him. He freed her hand to gesticulate.

"I was working then with electrons. I tried it next with molecules. They have random motions because of heat. It's more pronounced in gases and liquids, but it's always there. When I was able to make all the molecules in a glass of water try to move in the same direction at the same time, I knew I had the next big thing lined up. I was trying to fix some iron the same way when you came in to try to make me eat."

Then Steve stopped short and looked at her. His expression became one of intense self-disgust.

"Lord! Frances! Here I'm talking rot instead of going after grub for you! Why do you stay here and listen, anyway?"

"I thought," said Frances ingenuously, "that maybe when you got through you might kiss me again."

They went out of the laboratory some ten mintues later, with Frances smiling contentedly and patting her hair back into place.

"And we're both hungry," Steve said to her, marveling. "It must be love!"

They were laughing when they went in search of Bob, the boy. He had labored magnificently, but his creation looked like

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nothing that had ever been before on earth, or in the heavens above or the waters under the earth. It was an incredibly intricate arrangement of bits of second-hand wire and salvaged bottles from the former trash-dump. Some of the bottles were filled with liquid and had wires inserted in them, but others seemed completely empty save for wires which had no apparent purpose.

"These are our jewels, I think," said Steve. "I'll check it over and get some of our whiskered allies to work it. Since Bob, here, made it, they may not think I'm a witch if it works. But they'll keep him busy for the next month or so explaining it to them."

He verified the meanderings of wires which were definitely not in any circuit which could be classed as electronic. It was something completely new, and it looked insane.

"A good job, Bob. Let's show it to the others."

The boy gulped, and ran. In minutes the others came to see. The boy stood back, trembling with excitement.

Steve smiled at the men who still regarded him with a mixture of faith and dark suspicion.

"This is a machine to cause accidental happenings," he said. "Our young friend Bob made it. He'll explain to you how it works. There are all sorts of accidents. Some are good ones and some are bad. This is supposed to cause good ones." He pointed to the bearded man who had been first to say that even if Steve had defeated the late looters with the devil's aid he was glad of it. "You, there! If you'll take hold of those two handles and think of what we need to have happen, I believe you'll get your wish."

The bearded man stepped forward. His face contorted with sudden terrific emotion. He held the handles.

Nothing happened.

Steve touched his shoulder and he stepped back.

"I wished," said the bearded man fiercely, "that every murderer and looter in the world should drop dead, and every man who had anything to do with the bombs!"

"I'm afraid our gadget isn't up to anything on so large a scale," said Steve drily. "We'll have to be a bit more modest. That couldn't happen by accident. It couldn't happen by chance."

The boy whispered to Steve.

"But it works, sir! I tried it. I—pulled for it that some day I'll know as much as you do, and the wires glowed!"

STEVE looked at him, and could make no comment. He turned to the other men.

"Somebody pull for something that's simply improbable," he suggested curtly. "I want you people to realize that this is simply machinery but that it does produce a definite result."

A younger man took the two handles. One of the bottles with wires and liquid suddenly bubbled. The wire seemed to grow incandescent under the liquid. It stayed that way. Another wire, exposed to air, glistened wetly. The wetness clouded. The wire covered with frost. Then, gradually, the incandescence died away. The young man, a little bit frightened, let go of the handles.

"We're all on short rations," he explained apologetically. "I wished the snares we've got in the woods will get filled up so we'll all have a good supper."

"That is what science is for!" said Steve approvingly. "Right now, anyhow. Let's

[*Turn page*]

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see what we see."

An hour later the men began to come back from their round of the snares. They had more than twenty rabbits, two ruffled grouse, and a partridge. Steve nodded in satisfaction.

"I guess we can keep game coming in to feed us," he told Frances. "But we've got to be careful, at that. If there's a migration of game this way, there'll be people following it. We'll have to go in for wild-fowl, instead of ground-game. Say, a dozen or so ducks or geese or whatnot to land on the pond each day.

"Somehow too, we've got to get vegetables, and some iron and stuff to work with." He sighed. "I'm not going to feel comfortable, though, until we've got some kind of a defense against atomic bombs and attacks by the guerillas who might be sent to hunt us down."

"I wish you had more time to be with me, Steve," Frances said wistfully.

"I wish that those two men who went off to hunt for the women would come back," said Steve. "And Lucky would be handy to have around. I can cook up gadgets, Frances, but I guess I'm not practical. Everybody's been hungry because I wasn't. And we've got to be practical.

"The people with planes and bombs do know that something odd happened around here. Their man had reported it before I killed him. And it's a fact that, if we're let alone, sooner or later we'll be dangerous. But right now they could crush us as we step upon ants."

There were thirty people in the house, of whom Steve and a sixteen-year-old boy alone could make a device which controlled chance, and therefore constituted the whole body of useful science left upon earth.

The rest of the continent of North America was a waste, roamed by ever-more-desperate looting bands who inevitably tore down any traces of civilization they came upon, guided by the spies of people who were resolved that America should become unpeopled save by savages.

But the two men who had set out days before, came back that afternoon. They had two women and three small children with them. The women and the children were nearly half-starved. One of the women had been a prisoner of a small band of looters, a fragment of the bands which had hunted the refugees across country. Her captors were now dead. The two men were filled with bitterest rage. The shorter of the men had four fresh scalps dangling on his belt.

That was disturbing. Civilization could not be based on scalps. But as Steve was thinking it over in his mind, later on, there was a hail from the new-fallen night.

Lucky Connors had come back.

CHAPTER XII

Ominous News

UTTERING a cry of delight Frances hugged Lucky and Steve found himself unexpectedly jealous. But Lucky put out his hand and grinned.

"You' been goin' places, fella," Lucky said. "You really got things done. Whew, electric lights! You got a whole tribe around you. You got plenty of grub?"

"We'll do," said Steve. "I've been needing you, Lucky. I seem to be the absent-minded professor type. But there's a kid here who used to play with television."

"Migosh!" said Lucky. "Stop him, fast! Those guys with planes and bombs can track down anything like that. Look!"

He unslung a pack from his back and tumbled out a half dozen small flat objects.

"These here are some kinda short-wave sets," he said earnestly. "Spies for the guys with planes carry 'em. They can spot anything that runs by electricity with 'em. They can talk with planes with 'em. And they can find each other and know each other with 'em. If there's somebody playin' with television around here he'd better quit right off!"

Steve nodded.

"We're safe as far as that goes. I got one of these same things from a spy I killed. If you open them the wrong way they blow up, though."

Lucky grinned again. They were in the big room of the house with electric lights, but as there was a serious shortage of bulbs, a great fire was burning in the fireplace. The farmers, who now gave Steve great respect, had gathered to listen. Lucky seemed to be in fine fettle.

"I got me a spy, early," he said contentedly. "Remember I told you I was gonna hunt down one of the fellas who report to

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the guys doin' the bombin's? And I said I was gonna make him talk? When I left here, I pulled hard to meet one of those fellas. First day after I left, I struck on south. Then west. I went on three days and never saw a livin' soul. I didn't feel agreeable, and maybe it was just as well.

"On the fourth day I found a dead man, new-killed. He looked like he'd been eatin' regular, so I hunted for a trail an' went on after the folks who'd killed 'im. 'Bout nightfall I caught up with 'em, settin' around a fire. I went in to the fire an' says, 'I'm Lucky Connors and I'm a gamblin' fool. I got a rifle I'll gamble against grub or what have you, with y'own dice.' That kinda broke the ice."

Steve grimaced. With a crater-stone, controlling chance, Lucky Connors could not lose shooting crap unless he wanted to, no matter what dice he rolled.

"Them that woulda killed me for the rifle, figured it'd be more fun to roll me for it," said Lucky. "But I cleaned up the camp, usin' their own dice, and some of them was the crookedest dice I ever did see! Then I ate hearty and said, 'I'm Lucky Connors, fellas, and I can't carry all this stuff I won. You fellas take it back and let me in on the party, whatever it is.' And I set back and waited for 'em to call the play. But I was in."

Lucky paused and grinned.

"They coulda killed me, but every one of 'em wanted to find out how I made their own dice misbehave," he went on. "So we set around cordial and they told me what they were almin' for. They'd heard there was a farm that hadn't been raided and there was a coupla women and plenty of grub there, so they were goin' over to see. So I joined 'em for the raid, and I pulled for the folks we were goin' after to light out before we got there."

He pulled forth a pipe and tobacco. He filled and lighted his pipe. The watching men stirred hungrily.

"Smoke up on me," Lucky said hospitably. "I got some more."

He tossed a bulging bag to the nearest man. It went from hand to hand. Some of the men had not smelled tobacco for weeks.

"They'd cleared out, all right, but we looted the place of grub," he added. "We burned the house, too, and set fire to the crops in the field. It was the boss of the gang who done that. That fella kinda—uh—int'rested me. How'd he know about a farm that hadn't been raided, and why'd he want to burn crops that coulda been come back for after they was ripe?"

THE atmosphere was not cordial. These men were farmers, too, and half their number had been killed by looters exactly like those Lucky said he'd joined.

"I kinda figured things out," said Lucky. "If I was right, he'd have some kinda report to make, that night. So I didn't go off to sleep like the others. I hid out an' watched. And when everybody else was snorin', the boss of the gang he walked off beyond the fire, and he listened awhile, and he went on a ways farther, and then he started mutterin' like he was mutterin' to himself.

"I let him talk himself out, and when he quit and started back to the fire I jumped 'im. Knocked him cold. I tied him up an' heaved him on my back and carried him till I was tired. Then I made sure he was tied tight and went to sleep."

Steve felt a light touch against his shoulder. It was Frances, sitting on the floor beside him to listen to Lucky. She leaned comfortably, unconsciously, against Steve. Any trace of jealousy he might have felt evaporated on the instant.

"Come mornin' I woke up with a shot-gun in my middle. There was a man and two women there, and the man was ready to blow me to here-and-gone. He was the farmer that we'd burned his house and crops. He'd watched us loot and burn his place. He'd have shot me whilst I was asleep, only he recognized the man I was carryin' all tied up as the guy who'd fired his wheatfield. So he was curious to know what it was all about, and he meant to ask me before he killed me. I told him."

Lucky grinned and puffed on his pipe. He enjoyed an audience, did Lucky. A little while before, most of his present hearers had been favorably impressed by his present of tobacco, and then turned to instinctive hatred by his narration of a share in a guerilla raid. Now they wavered. They did not know what to think. And Lucky enjoyed their indecision.

"That guerilla boss, he sure got eloquent. I never heard any man beg for his life so hard. So the farmer, he took my word for what I was after—the evidence was pretty good—and we staked that guerilla boss out and we built a fire and begun to ask him

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questions. When he started lyin' we stripped him—that was when I found the first one of the dinguses, Steve—and got some brands ready, and then he told the truth."

The eyes of the refugees burned, now. They no longer hated Lucky. They waited hungrily to hear of torture.

"What nationality was he, Lucky," Steve said suddenly. "What language did he speak into that transmitter?"

"Huh!" said Lucky scornfully. "He was nothin' but a lowdown looter! He talked American same as you and me. He'd been bossin' a kinda small gang, lootin' and burnin' and killin', and fellas would turn up and join and drop out again, and he wasn't makin' out so good. But a fella turned up and offered confidential to give him guns and whisky to build his gang up with if he'd take tips by short-wave radio and report what he seen and done."

Lucky turned and gave Steve a quick glance.

"You and me, Steve, woulda shot that guy for a spy, but this boss guerilla took him up. And the fella gave him a short-wave set and told him how to use it—but he warned him not to open it—and sure enough, next night the short-wave set told him where to find a cache of whisky and a few guns, and he began to prosper. He had thirty—forty men under him when I joined up. Mostly they were raidin' farms that the short-wave told him about, burnin' 'em and gettin' the grub and killin' the people just for the deviltry of it."

He paused.

"It took us a right long time to get all the details outa him," he added drily. "Once we had to start a little bit of fire on his middle. But he told us everything he knew, and I treated him fair." His tone was virtuous. "I done just like I promised I would, if he told me everything he knew without holdin' back none."

A bearded man leaned forward, his eyes burning.

"You didn't let him go, man!"

"Shucks, no!" said Lucky in surprise. "But I kept to my promise. The farmer wanted to do it, so I let him, but that fella got just what I promised him—killed quick, with one shot. It took a lotta argument to get him to be satisfied with that, but I—uh—persuaded him." Lucky's eyes glowed with a satisfaction that comes when a long pent-up hatred is released by brutal revenge.

FRANCES' hand, in Steve's, tightened convulsively. Steve made no move. There could be no ethics in a war such as was now being fought.

"And after that, Lucky?" Steve said evenly. "That's only one transmitter. Here are a half dozen."

"Oh, we found out how to get 'em from him. There's other fellas like him that got transmitters, and there's fellas that pass 'em out. The ones who pass 'em out are from the folks with planes and bombs. One of those dials is for locatin' another fella who's got one. It's so they can join up and know each other and not waste time fightin' each other. He explained all about it. So the farmer and me, we used that one. We set it to make a kinda call, like he told us how, and we set and waited. Two-three days later some fellas come by and one of 'em told the others to go on ahead while he set down. When his fellas were outa sight, he came straight toward our sendin' set. I killed him."

Lucky's air was tranquil; his tone conversational.

"That fella had two pistols and more ammunition than you'd think one man could carry! And he had another set just like the one I had. I give it to the farmer and he said he was gonna go in the business of sendin' out calls for fellas with those sets. They'd always arrange to meet him quiet—naturally. And it'd be profitable work, when you think of it. Anybody hidin' out would give a lotta grub for a gun or pistol and some shells, and him and the two women, all havin' guns, could take care of themselves easy.

"Him and the women went off to where he said he knew there was another fella hidin' out. He said he guessed he'd set his friend up in the business too, if it turned out good. In fact, he might set up several fellas, killin' off men with sendin' sets that talk with the folks that have planes an' bombs.

"So I arranged a recognition-signal that everybody in that business would use to know everybody else, and we parted. A right nice fella, that farmer. He said he hoped I'd come to see him some time if things ever got better and he got his house built back up again."

Lucky seemed to consider his story ended. He puffed on his pipe and grinned at his audience.

"That still accounts for only two sets," said Steve. "And you've got a half dozen."

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"Yeah," said Lucky. "It was a kinda interestin' business. And it's surprisin' how many decent folks there are around, even yet. Hidin' out, all of 'em, and half-starved, most of 'em.

"But I set three-four of 'em up in business, and they're kinda gettin' a little confidence. They're even darin' to get in touch with each other. I told 'em it was ploughed fields that tip off the planes, and the planes tip off the guerillas, so they oughta make out better.

"They'll plant stuff in little patches. No furrows. No neat fields. That'll help a lot, all by itself. And they'll pass on the word. It's bound to spread, when all the sendin' sets in this locality get wiped out and the fellas that are huntin' 'em have to go travelin' to stay in business."

There was a deeply satisfied silence all around the room. The men who had suffered so horribly from guerillas had, at last, the satisfaction of knowing that guerillas were being killed. That spies were being hunted. That at least a small dent had been made in the disaster that had befallen civilization.

There was still no safety for them, however. There was still no real reason to hope. Their food depended upon the operation of a device to control chance, which they did not understand and which instinct forbade them fully to believe in. And they were definitely, terribly vulnerable.

This meant not only against guerillas and bandit gangs, armed and directed from the planes which could drop bombs. They could be blasted at any instant of any day or night if the folk who had destroyed civilization heard so much as a whisper of a suspicion that they clung to anything—those folk who had been doomed to die.

And there was worse, which they did not know. When the house was filled with the minor turmoil of people finding their resting-places for the night in so crowded a menage, Lucky Connors plucked at Steve's sleeve and beckoned with his head. Steve followed him out of doors.

"Frances looks okay, fella," said Lucky.

"I think she is," said Steve. "I hope so, anyhow."

"Yeah." Lucky was silent for a moment. "She—uh—understood why I went off?"

"Yes," said Steve uncomfortably.

There was a pause. Then Lucky shrugged. He said in a different tone:

"Things are comin' to a head, fella. On my way back here I picked off one last fella with a sendin' set. He and his gang seemed to be headed this way. It worried me. I—uh—made him talk. I guess he figured I was somebody doublecrossin' the fellas with planes and bombs. Anyhow, he'd been told to hunt up this house and find out what was goin' on here.

Steve frowned. "Here, eh? That's bad. What were his instructions, Lucky?"

"If it was guerillas like his outfit, okay—he'd get paid off in whisky and grub for findin' it out," Lucky answered. "If it wasn't, he was to report that, after wipin' everybody out if he could. He ain't goin' to report anything. I don't know if his gang will come on here or not. But when he don't report, somethin's goin' to happen! The folks who smashed up this whole country are interested in us. They know that somethin's wrong somewheres, with all their spies vanishin' like they been doin'. They're goin' to tighten up all around. They're pickin' on this place to start. What are we gonna do about it?"

Steve took a deep breath.

"I guess we'll have to fight," he said somberly. "There's nothing else to do. You know, it would be interesting to know who they are or where they are or what the devil we can do about them. I feel like a gnat trying to start a fight with a locomotive."

CHAPTER XIII

Enemy Bombs

KNOWING the extent of the danger which threatened, Steve made no pretense of going to sleep that night. Followed by Lucky Connors, he repaired to the room he'd set aside as a laboratory, and resumed his labors. But this time he had very specific objectives. Lucky Connors couldn't be of much help; he merely sat on a bench and watched Steve. And Steve's system of work seemed lunacy, at that.

Steve took one of the six child's copybooks and wrote in it. Then he took the handles of Bob's elaborate apparatus of wires and stray objects, and stood frowning for an instant. Nothing happened. He crossed out what he had written and wrote something else. He held the two handles again. The process went on and on. After

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nearly an hour, two wires in a bottle of clear liquid glowed incandescent, and a bare wire turned white with frost.

"That helps," said Steve. He surveyed what he had written and did not cross it out. "I'm playing hot-and-cold, Lucky. This thing does the same things the crater-stones do, and I'm trying to find a way to survive, in the possible futures that lie ahead. The crater-stones get hot when they work. This thing makes those two wires glow. It gets its energy from the wire that turns white, changing its contained heat into electricity and dropping away down in temperature in the process."

"Whatcha tryin' to do, Steve?" asked Lucky, who obviously was puzzled.

"Right now I'm pulling for a way to make a record of a thought-pattern, so it can keep on pulling for something even when my mind gets tired," Steve answered. "Nobody can hold a thought more than a second or two without some change. In the old days we had gadgets that did everything but think. I've got to make one that will wish!"

Lucky shook his head.

"Too deep for me," he admitted. "Way over my head."

"I'm playing hot-and-cold," explained Steve. "You remember how I found out this house was still standing before I saw it? I'm doing the same thing now. I pulled for it, just now, that I'd find a way to make a thought-record on iron. The gadget didn't light up. So it wasn't in a possible future that I could make a thought-record on iron. I went on, pulling for every possible material at hand. It just lighted up on protein.

"It is possible, in the future, to make a thought-record on some sort of protein. Now I've got to find out what kind and how. When I get close to what I want, I'm hot and this gadget works. When I'm not, I'm cold and nothing happens. It's a wacky way to do research, but it's fast. I wish I were cleverer, though. I might be able to make it a game of ten questions and get my answers in a real hurry!"

He wrote in the copybook and held the handles, frowning. Nothing happened. He crossed out the writing and wrote something else. Nothing happened. He crossed out and wrote, and crossed out and wrote. Lucky watched for a long, long time. Presently he yawned. Ultimately he dozed off.

He woke, cramped, and Steve was still busy with the same absurd routine. It seemed to have no relationship at all to the situation facing him and all the rest of the world. It seemed a dreary and useless rigmarole, while the situation was desperate and apparently irremediable. The whole earth had exploded in a welter of destruction, in which cities vanished in the blue-white glare of atomic explosions.

Nobody knew who had started the destruction. No nation knew what other waged war against it.

In one sense it was not war at all, but a series of international assassinations in which all destruction was done anonymously and every nation cried fiercely that it was attacked and no nation admitted attacking. Now the whole earth was pock-marked with glass-lined craters where cities had been, and if any victorious nation actually survived, it was only after such destruction as no vanquished nation had ever before endured.

But some nation did survive more nearly than the rest. There were some folk who still had planes and bombs. They had arms they could give to guerillas to complete the ruin of a shattered America.

They had microwave communication sets with which to guide those bandit allies in the reduction of America to sheer savagery. They had monster aircraft which flew in the upper stratosphere. And unquestionably they had bases in which the arms and bombs were stored and the aircraft serviced, and from which the organized production of chaos was controlled. They had spies, who must number in the thousands.

Their bombing and fighter forces must be huge. Their technical facilities and resources must be on a relatively gigantic scale, compared to one small group of people, some thirty in number and with exactly one weary physicist among them, who could marshal only a dozen or so firearms and a single contrivance of salvaged copper wire and reclaimed bottles and clumsily straightened nails. No self-respecting junk-yard would have given room to the equipment in Steve's laboratory. But it was all he had, and he worked it grimly. With it he fumbled incalculable possible futures for a path to safety. Now and again two wires glowed in a bottle. They were the markers on the path.

When red dawn came he still worked, and in the same way. Scribble in a book. Hold two handles and think—cross out the scribble and scribble again. Hold two

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handles.

The strain was monstrous. Such mental effort was much worse than any physical labor could have been. But he went on like an automaton until the sun was clear of the horizon and climbing higher yet. Then, suddenly, the wires in the glass bottle glowed yet again. When they did, he dropped his hands in a gesture of wornout completion.

But he could not rest, even yet. He had to make sketches of the new circuits, with the materials specified and all connections indicated. And then he had to set to work to make them.

When the sound of stirrings began in the house, he stopped and hunted up the sixteen-year-old Bob. He handed over the sketches for two devices and dully explained such details as the sketches did not show.

The boy scanned them eagerly and set to work at once. And Steve went back to the making of the third gadget—and fell into the numbed sleep of mental exhaustion before it was quite finished.

TIME passed. Off somewhere a dozen miles away, a band of guerillas woke in quarrelsome mood. Their leader had vanished. Because of his absence they'd drunk up the whisky he occasionally produced as if by magic, and had fought each other blindly.

This morning there were three dead men in camp, and still no leader.

They argued in a sultry fashion while they ate what food remained. They had no plans. They only knew that their leader had intended to examine a house a dozen miles away, a house which might be the headquarters of a rival band, or which might be the hideout of folk who could be robbed.

In either case it was a destination. Rival guerillas could be joined, most likely. Refugees could be killed, quite certainly, and refugees usually had some women with them.

As the morning wore on they quarrelsomely agreed to carry on. At about noon they began a shambling march toward the house, bunched and careless and pettish. They did not take care to stay among trees. Where they came to weed-grown fields they crossed them instead of skirting the edges.

At the house, the boy worked feverishly, and two intricate, lunatic agglomerations of metal scraps and oddments grew to completion under his hands. He went to hunt up Steve. He found Steve just desperately awaking and going on desperately with his part of the task.

Outside, Lucky fretted because there was no sign of Steve. Frances fiercely tried to stop him from going into the laboratory.

"If he fell asleep, let him!" she protested. "He works all the time, Lucky. He never rests."

"But there's a lot that's due to happen today," Lucky said uneasily. "There's a gang comin' this way and all."

"You're here," said Frances. "You've got a crater-stone. You'll do something about it."

"Shucks!" said Lucky. "You think I'm a friend of yours, don't you? Well then, let me be a friend of yours! There's big doin's on the way. I don't know how to handle 'em. Your friend Steve does—or he seemed to think so, anyway. I'm goin' to call him. Things need doin'."

He knocked vigorously on the door of the laboratory.

"Rise and shine, fella!" he called. "What do we do?"

Steve came out of the laboratory, carrying the most improbable of freakish creations under his arm, while the boy Bob went on anxiously ahead to where he had assembled two more.

"Come along," said Steve. "We've got to mount this stuff outdoors."

He led the way up the hillside behind the house, where the boy was at work bracing an absurdity upright. One of the two things he had made was merely meaningless tangles of wire and bottles on a bit of charred board. The one he braced so carefully had been built around a section of three-inch sapling, which rested in a forked stick on two scorched, approximately straightened nails. It could be aimed like a gun.

"These are finished, sir, like I told you," the boy told Steve worshipfully. "I don't get what they'll do, though."

STEVE put his own device down. He began to check the ones the boy had made.

"They'll all hook together," he said. "The one I just finished is a thought-record dinkus. It'll hold a wish or a thought or a condition to be hooked into the others. It has to work, because I pulled that it would and it was in the pattern of possible events. That one—" he pointed to the section of sapling in the forked stick. "That's a hypothetical probe. It's like radar, in a way, but it can handle

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the output of the other, which is a generator-maker. You know how we make our electricity, Lucky?"

Lucky shook his head.

"We enhance thermal noises," said Steve, still checking the Goldbergian assemblages of odd parts. "Shot effects, you know. They're natural, spasmodic currents in all bits of metal. They're accidental. So since we can control accidents, we can make them happen constantly and much stronger than in nature.

"We make all the free electrons travel one way and that cools off the metal and produces current, and the cooling absorbs more heat to make more current. We can make that action permanent, and it gives up all the power we need. This gadget will make it happen at a distance, but the effect will be only temporary."

"You said this was a hypo—hypo—" Bob said unhappily.

Steve untwisted one connection the boy had made, and twisted it in another place.

"You did good work, Bob. A hypothetical probe ought to be a variation on the way we've been finding out things. Up to now we've been pulling for something to happen, and if the crater-stone or the thing you made for me worked, we'd know it would happen. But this is a probe. It doesn't say, 'I wish this to happen when I do so-and-so.' It says, 'If I did so and so, would this happen?'

"Here! It looks all right. I'll try it. I hook in the thought-record—so, to ask the question, 'If I went along the line the probe points, would I see a plane?' We can't go straight up, you know, so it has to be hypothetical.

"With a crater-stone, Lucky, we'd get no answer. Finding a plane by going straight up wouldn't be in the pattern of possible events because we can't go straight up. But it's in the pattern of ascertainable facts, so this thing ought to work."

He swung the block of wood skyward. Wires glowed suddenly. He stopped moving the device.

"There's a plane up there," he said quietly. "The thing works like radar. Yes, there's a plane up there!"

Lucky heard a distant screaming sound. Far away, black smoke mushroomed upward in a swift-moving, billowing mass. There was a second distant eruption. A third and fourth and fifth. Then the concussion-wave and the sound of the first explosion arrived simultaneously.

Leaves overhead jerked spasmodically.

The sound of the first explosion was a crushing roar. The second sound came, and the third and fourth and fifth. Each was louder than the one before. Each was nearer.

"Hey!" said Lucky in a queer voice. "They're comin' closer!"

Steve's hands moved swiftly, with incredible speed. He was making connections with his fingers. Bits of wire tore the flesh and blood spurted, but he paid no heed.

"We're going to be bombed," he said with savage brevity.

Smoke spurted from twin explosions two miles away, then from three more, a mile and a half off. A bombing pattern was being established. Everything within an area, four miles long and two miles wide would be obliterated. But it had been extended a little because a band of moving figures had been sighted from above.

They were, of course, the quarrelling, leaderless guerillas whose leader had vanished the day before. They moved toward a spot where mysterious events had been reported. The guerillas made no reply to microwave signals sent down to them. Therefore they seemed a part of the mystery, perhaps the occupants of the house, and they were bombed.

Then the pattern of bombs moved toward the house, faster than any human being could flee. A bomb went off a mile away, and then two others flanking it. The concussion-wave staggered Steve. But he said harshly:

"Got it!"

He twitched the last two wires together. Other wires, bare wires, frosted suddenly as their internal heat became a surge of electricity and they drew more heat from the air around them. Two little wires in a bottle glowed brightly.

Then the sky cracked open. Wide!

CHAPTER XIV

War by Science

CONCEALING leaves were blown from the trees by the violence of the explosion. A bare half-dozen panes of glass, left in the house, splintered into fragments. Men reeled from the shock of the blast over-

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head. The world was filled with thunderous bellowing tumult which was the sound-wave of detonations overhead.

Its echoes and reechoes rolled and reverberated among the hills.

The noise died away, grumbling in the distance. Birds—at first paralyzed by fright—flapped and squeaked among the branches, and then took to wing in panic-stricken flight.

Almost directly above the house, some four thousand feet up, there was a monstrous, globular mass of black smoke. It writhed within itself. But a wind shifted it away, leaving streamers of sooty vapor behind.

And then, very high indeed, there could be seen another globe of black the size of a football. That was probably fifteen thousand feet up. Beyond it there was another at a likely twenty-five thousand feet, the size of a pea, and possibly others higher still. They were bombs which had detonated as they fell.

There was silence for a brief time only. Women began to call shrilly to their children, as if a mother's arms could protect the children from bombs. One woman sobbed throatily. Lucky Connors stared up, his face gone white and drawn. The boy Bob also gazed upward with awe-struck, shining eyes. And Frances looked at Steve with the luminous expression of infinite pride a woman displays when her man has done something remarkable.

Steve set his lips.

"I guess that's that. They'll send over an atomic bomb next. Here! Where's some extra wire? We've got to put a wide-angle extension on that probe! It's got to work like a fish-eye lens!"

He snatched up scraps of extra wire. He began to form a reflector—radar-fashion—for the end of the apparatus made in the sapling-trunk.

"I can do that, sir," the boy said quickly. "Like a one-eighty beam reflector, two ways?"

Steve nodded. He turned feverishly to the other maze-like masses of wiring.

"Got to cancel that thought-record and make another," he muttered. "There's not much time."

His fingers bled. He shook them impatiently. He worked—he nodded to the boy. He fitted the newly-formed shape of wire to the end of the thing he had called a probe. He fastened it in place and aimed the sapling trunk skyward.

"Now we'll see what turns up. They should guess what's happened."

It was broad daylight, just past noon. But at that instant there was a flare of light at the very horizon which was brighter than the sun itself. It was monstrous in size. It was as if, for the fraction of a second, the sun had been brought terribly close to earth and had poured out a monstrous, radiant heat. Then the light winked out. The heat ceased. There was nothing where the light had been.

Steve's tensed body went lax with relief.

"That did it, all right!" he said shakily. "That was an atom bomb going off beyond the atmosphere. They must have learned what happened to their bombers and started a rocket for us as soon as they could aim it."

Then something made a shrill whistling noise overhead, and it rose in pitch and rose in pitch, and hit heavily into a hillside two miles off. It did not explode. Nothing at all happened.

"That would be a bombing plane, I guess," said Steve as shakily as before. "It took all that time to fall."

Other shrill whistlings came to the ears, two and three at the same instant. They sounded from every side, but every one of them ended in dull impacts. Some were far, far away. There must have been a dozen in all.

Frances' eyes were frightened.

"There was a fleet of planes overhead—to bomb us! And—and—" She stared at Steve.

"And they ain't there any more," said Lucky. He swallowed. "I never been so scared since I got my luck. That was a atom bomb, fella?"

ANOTHER lurid monstrous flare blossomed on the horizon. Lucky flinched.

"Yeah," Lucky continued, answering his own question. "And there was another one. And another!"

A third instantaneous, weirdly silent flare came as bright as the sun itself and many times larger. Three atom bombs had exploded in empty space as they rose curving from below the horizon to fall upon people who dared to resist chaos.

Steve sat down suddenly and put his head in his hands.

But Bob, the sixteen-year-old, spoke raptly.

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"I got it!" he cried. "Golly, I got it! He hooked on a generator-maker circuit, so the probe threw a beam that made generators outa every piece of metal it hit. Every one! The bombs that were fallin' were turned into generators. The different pieces arched where they were close together. They heated up thin places in the fuse. They burned into the detonator and they set it off. And they exploded, every one!

"Next, the planes—they got to be thousands of generators all hooked together, every piece spittin' blue-white fire. Every wire to every instrument and every control became charged and started pourin' juice into everything all at once! Every control burned out! Every motor jammed!

"Where the ends of every bit of metal wasn't spittin' electric arcs, it was gettin' cold as liquid air, and brittle, with no strength to it. It'd break, then— Oh-h-h! I got it! I got it!"

Steve looked up. Frances gazed at him, wide-eyed. He lifted himself rather heavily to his feet. He put his arm around her. He opened his mouth, and closed it.

"Let's get something to eat," he said at last. "We're safe now for a while, but we can't stop with being safe! We've got to fix these people so they can't do any more damage, and then I guess we can start getting civilized once more."

He kissed her almost absent-mindedly as he walked toward the house with his arm around her waist.

The refugees were shaken and scared, but also they were savagely triumphant. Food for Steve was handed to Frances to serve him, but most of the people who now relied on him were too much in awe to ask questions. They clustered around the boy, who was one of their number. He made voluble explanations, his eyes shining. There was the probe, which was simply a variation on the apparatus which acted as an artificial crater-stone.

To get information from that apparatus or from the crater-stone, one used it to explore possible futures, automatically causing a change in the probability of future events. But the probe explored the factual present, with no effect upon probability in itself. It worked like an infinitely superior radar. It could be adjusted to hunt for anything. Anything at all. The generator-maker was actually a more effective weapon than the atomic bomb, for defense.

If every separate bit of metal in a complex bit of apparatus—such as a bomb-fuse or a bombing plane—became separately charged with high-voltage electricity with plenty of amperage behind it, that apparatus would be destroyed.

The generator-making field created just such a condition when it was in action. It was rather as if a beam of magnetism could be projected, to make temporary tiny magnets of every sheet and rivet and wire in an aircraft, with all the north and south poles emitting electric arcs. And where the poles were far apart, the middle dropping to the temperature of liquid helium, when no metal has either strength or elasticity.

The third piece of apparatus simply controlled the other two, but no atom bomb could penetrate such a defense, nor could an atom bomb provide a defense against it.

And the three devices were startlingly simple, when the functions of which they were capable were considered. A civilization based upon controlled chance would not merely be one in which good luck was universal. It would be one in which there could never be danger from atomic bombs.

Steve called a council of war that afternoon. The deliberations were interrupted, once, by a drum-fire of distant detonations. A sentry, outside, gave the clue. When the first boomings sounded, he'd whirled to look. And he saw smoke-puffs just over the edge of far-distant hills. As he stared, infinitely tiny specks darted over those same hills and instantly exploded.

"Ground-level planes," said Lucky, wisely. "Tryin' to sneak up at treetop level. In the last war, the early radars wouldn't work except on high-level stuff. But these fellas can come up behind hills, and when they come over 'em, the dinkuses mess 'em up."

A THOUGHT had occurred to Steve. His eyes narrowed.

"They might try ground troops, too, but I can change the thought-record to take care of that, too," he said. "The thing is that they're going to keep on trying to get us. Yet I doubt that they'll anticipate an attack from us very soon. They couldn't possibly detect the stuff we're using, so they probably think we've got radar and power-beams with a couple of hundred thousand horsepower in them. That sort of stuff wouldn't be portable. They'll expect us to

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stay on the defensive and try to build up what they think we've got. So we'll attack them before they have a chance to figure things out."

Frances looked anxious.

"What do you mean to do?" she asked.

"We'll duplicate these gadgets," Steve said. "We'll carry the extra ones with us. We might make an extra set, for safety, here, too. I think—hm—four or five of us should be enough to make the attack with. But I'll have to use the probe and locate their nearest base."

"It's a coupla hundred miles south," said Lucky. "I found that out. There's some territory there that folks go into and never come back. A place about fifty miles across."

"Then that's it. Who'll come with Lucky and me?"

There was almost an uproar. Eleven men among the refugees now considered Steve their chief. They had regarded him at first with suspicion and then with unease. But after witnessing what had happened today they trusted him implicitly, and they looked forward to slaughter of the folk who used planes and bombs to wreck a world. Their eyes burning, to a man they demanded to go.

But Steve chose only three. Then he hesitated.

"Lucky, how about you staying back here to run things? You know how to pull for what's needed and have it happen."

In his mind was the thought of Frances. But Lucky rejected the suggestion.

"No dice, fella," he said. "I ain't talked much, but I've seen plenty. If there's any killin' of those fellas to be done, I'm goin' to be in on it!"

There was another distant drum-fire of explosions. They listened; and that was all. It was merely more planes trying to come and bomb them, the only thing they had feared most for weeks. But Lucky fidgeted.

"I want to go out and watch 'em blow up," he said. "We start hikin' about daybreak, Steve? Okay! All set!"

The council of war broke up. Bob, the boy, began the duplication of the devices that had been made that morning. Steve explained to him gravely that it was more important to have many such devices available than to perform any other service. It was important, too, to train other men to make them.

And the men were desperately anxious to learn. Clumsy farmers' fingers copied, painstakingly, every incomprehensible detail of the models the boy set up for them. There were four sets complete within three hours. Steve, checking them, rearranged one to an even greater compactness. It still worked.

By nightfall the model had been refined still farther, into a rifle-like projector with a blunderbus-like coil where the barrel should have been. And five men sat up all night to make extra ones for the expedition to carry in the morning.

But before that—much before that—Steve and Frances went out-of-doors alone. There was a moon again. They talked quietly beneath a spreading tree. Insects made romantic noises. Night-birds called mournfully in the darkness.

"We'll make out," Steve said awkwardly, when Frances had protested vehemently that she wanted to go too. "But it's going to be a tough hike. We could construct some sort of traveling device, but they'd be looking out for that. They'd never think, though, that people who could blast their planes out of the sky would be content to travel on foot. So that's the way we'll go and we're going to travel fast. Meanwhile you're going to stay here."

He kissed her, and her protests were stifled. Then there was an isolated explosion, far away. Frances started.

"Just another try by a sneak-plane," he told her. "They'll keep that up indefinitely." His expression grew pensive. "Er, I'm going to bring something back. I used the old crater-stone, for sure, and pulled for something. And it warmed up. So I know I'll come back with what I want."

There was no reason whatever for secrecy, but he whispered. And she put her arms about his neck.

Then, suddenly, over at the horizon to the south, there was a lurid flare of light as brilliant as the sun and vastly larger. For the fraction of an instant the world was illuminated more brightly than by day. It was another atom bomb. Then came the blessed dark again.

And Bob, aged sixteen, who had come out to ask Steve a professional question about a proposed change in a circuit, blinked in the re-fallen darkness.

"Gosh!" he said.

He went went back into the house without disturbing them.

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CHAPTER XV

Invasion

BY EASY stages, it took them only four days to make the two hundred miles, because early on the second day they came to a broad river. They made a raft and floated down it day and night, with only one needing to stay awake on watch.

They used the probe to check their progress, and disembarked on the fourth afternoon. Then they went on.

At nightfall there was absolutely no sign that this part of the world—all weed-grown fields and desolation—was any different from any of the rest. But they knew.

Lucky had become fascinated by the probes. There was a switch which, when thrown, allowed the object sought for to be varied.

Lucky grinned cheerfully.

"This is about where the first line of watch-dinkuses will be," he said.

He'd used the probe on a thought-record which made it seek out devices which would betray their presence to enemy watchers in the center of the foe's dead area. He knew that there were three lines of photo-cells and induction balances which, without alarming anyone who ventured in, made their capture or killing a certainty at the option of the inhabitants.

Lucky swung the probe right and left, and chuckled.

"Pullin' for a place we can go through without settin' anything off."

They went through. They went on. An hour later they reached the second line. They went through that. The third. Lucky used the probe continually.

"Hold it!" he said presently. "Somethin' funny up ahead."

He was quiet for a long time.

"I don't get it," he murmured to Steve finally. "I've found something to stay away from. Not a trap. Not a warner. Not a big bunch of those folks. Not bombs. You try, Steve."

Steve put the switch of his own probe to brain-control and tried. After a little, he smiled grimly.

"Prison-camp," he said. "A lot of people in it. Our kind. *Hmmmm.*"

"There'll be guards, but they'll be watchin' in, not out," one of the other three said hungrily. "We could kill 'em and—test our stuff."

"Why not?" said Steve. "I guess we owe them quite a bit."

They advanced. They came upon a long line of electric lights—more of civilization than was believed to exist anywhere—and a stockade, with hovels inside it. They saw a guard pacing up and down, a rifle carried negligently over his arm. Lucky squirmed away. The others waited. A long time later Lucky's voice came faintly:

"Hey, fella!"

The guard whirled, grasping his gun with both hands at the ready. Then, in the dim light of the electric bulbs, those in the darkness saw what happened. The barrel of his gun turned white with frost. Sparks—arcs—played about his fingers. He could not let go. He toppled. He moved spasmodically. He rolled over and over. He was still. Then his dead body flexed horribly and relaxed again.

Lucky came back, humming snatches of a little song to himself.

"They'd be right curious what killed him, if they'd have a chance to look," he said amiably. "Electrocution is handy. It's permanent and it's quiet, and any fella with a gun carries his own generator providin' he touches his gun in two places and we turn a beam on him."

The men who had been refugees moved forward eagerly.

Presently the five reached the place where the guards' barracks stood. The guards on duty were dead. Killed as their comrade had been killed. By electrocution.

Steve turned his riflelike instrument on the barracks. Instantly the lines of electric lights flared white-hot and blew out. The dynamo for power was in the barracks. He had multiplied its voltage enormously, so that at the same time, every other bit of metal in the building spat charring electric sparks. Most of the guards seized weapons at the first alarm. They died. The rest snatched up weapons when Steve fired a shot in the air. They died, too.

Steve went through the gate beside the contorted figure of a man in uniform. The rifle which had killed him was still clutched fast in his charred fingers. Steve entered one of the hovels and spoke briefly and urgently to the unseen people within. He came out.

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BEFORE the five were out of sight in the darkness, a stream of running figures had poured from the prison-camp gate and dispersed in the wilderness outside.

"*Hm*—slave-labor," said Steve, thoughtfully. "That means there'll be more such camps. They must've had some way to produce food. It may turn out handy!"

Before dawn came, the five occupied a neat, small lookout-building atop a hill. Its former occupants were no longer concerned with the affairs of this world, and a telepone instrument buzzed angrily.

"I'll take the call," said Steve.

He picked up the phone.

"Hello!" he said pleasantly. "I want to speak to the officer in command of this base . . . I'm the American in command of the forces which is going to wipe you all out if I don't get what I want . . . I don't speak your language . . . Speak English, please! . . . We have your base under the threat of weapons you can't possibly resist . . . No, I'm not crazy! Listen!"

He nodded to Lucky, who coddled his weapon. It was aimed where its probe-function had told him the heavy bombers were based. A pair of wires in a baking-powder bottle along its "barrel" glowed incandescent. There was a sudden spout of fire four miles away and then a series of racking explosions following each other with incredible rapidity.

"You probably heard that," said Steve into the telephone as the echoes rolled. "You'd better connect me with your commanding officer. I suggest you have him waked up, if it's necessary. I'll hold the wire."

He grinned at Lucky. Lucky was holding his weapon vaguely toward the horizon but above it.

"I got a hunch," said Lucky happily. "I got a hunch there's a plane comin' in. Right on the line where they keep their atom bombs."

"They'd be fools to keep them assembled," said Steve. "Take a chance. There'll not be more than one or two in firing condition, anyhow."

Lucky aimed, chanting softly. "Will that plane crash the atom-bomb stores, if I knock it down now—now—now—now?"

The wires glowed.

"*Mmmh!*" he said.

There was a long wait. Then, utterly without warning, there was a flash of such awful radiancy and such ghastly, overwhelming heat, that the five momentarily were blinded. There was the smell of hot paint in the little lookout-building. There was a sound which was beyond sound. The building rocked on its foundation.

Steve's voice came out of a deathly stillness.

"Really," he said into the telephone in a chiding tone. "We're getting impatient! Will you connect your commanding officer or do you want more atom bombs?"

Chattering, disjointed buzzings came from the telephone instrument.

"You chaps look hungry for something to do," Steve said to the three bearded men of his following. "Set fire to part of the town. Only part of it, though, mind you!"

If wires and nails and even kitchen utensils poured out arcs of electric fire, flames would follow. The three small hand-instruments did not have to furnish the energy for the arcs. That was already present in the metal objects which would emit them. The three men grimly used their weapons.

"Hello!" said Steve into the telephone. "You're in command? Good! I suppose you're a general? . . . Then, General, you will immediately order all your troops under arms, march them to the nearest prison-camps, have them stack arms and deposit all cartridge-belts with their small-arms, and release the prisoners and take their places.

"I am sure the prisoners will arm themselves. They may mount guard over your men. I wouldn't know about that. But certainly if you haven't started the carrying out of those orders in five minutes you'll regret it."

He looked inquiringly at Lucky, who spoke softly.

"The arsenal, where they stock their ammunition."

"And just to urge you on," said Steve gently. "Listen!"

Little wires glowed where four riflelike instruments pointed along the line Lucky indicated. Heavy detonating tumult began off in the night.

"Your high-explosive bombs will go next," added Steve. "Or we can set the rest of the town ablaze, as part of it is burning now."

Screaming, squealing sounds came out of the telephone.

"Very well," said Steve pleasantly. "All your men in the prison camps, and all the

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prisoners out, or I'll get quite provoked. I'm going to hang up now, General, and there'll be no more arguments. Obey your orders or we will begin wiping you out."

He hung up. His features were pinched and very tired, but he was smiling. There was a dim red light in the sky to the east.

"It's queer that I don't feel like a murderer," he said softly. "We must have killed a lot of them in the last few minutes. But it doesn't bother me at all. After all, we haven't killed one in a hundred—no, not one in a thousand—of the murders they've done. We really ought to wipe them out. Only we can't do that sort of thing."

"Maybe you can't," said a bearded man grimly. "We can!"

"You'll probably have to kill a few," Steve told him. "But it will pall on you when they can't fight back. That's an odd thing about us Americans. We're about finished here, I suspect. We'll have to tip off the released prisoners what it's all about, and let them organize themselves. I imagine they've been used to cultivating ground as well as for work in factories. They'll put their former bosses at those jobs instead. Then we'll go back home.

"No," he now added reflectively. "We'll have to leave one of our number here to knock off any plane from other bases that may turn up, and we'll have to figure on taking over all the other bases there are. By plane, I guess, in time."

Then he said, with an unconscious gesture of brushing off his fingers:

"Let's go out and look at the sunrise."

IT WAS three days before they started back. Five of them had started, and five men rode back, but one of the five was a stranger. They rode on splendidly-groomed horses from the general's stables, and each of the five had, besides, a led horse trailing behind him with food for the journey and other items that would be welcome. Wire, for example, and seemly more other parts for more duplications of the probe and thought-recorder and the generator-making combination that each of them carried, save one. But there was cloth, and some toys, and sugar, and pepper, and such items as conquering heroes may lawfully loot and take home to their womenfolk.

They made the trip back in five days. And when the horses emerged from the woods near the house and pushed on across weedy fields toward it, yells greeted them. Yells of purest triumph. And Frances ran and ran and ran to meet Steve, so that when he swung her up before him she could only pant and hold him close while she put up her face to be kissed.

"We did it," he told her. "One base was smashed and taken over by the slave-labor they had there. Decent people, the captives were, most of them. The other kind were more useful outside, as guerillas. The released victims are planning an organized sweep to wipe out the other bases all over America, and then they'll start on the rest of the world."

She held fast to him and he could feel the beating of her heart.

"Where's Lucky?" she said suddenly.

"He stayed," Steve told her. "Somebody had to, and he stayed with a gadget to protect the place until we can send back some more stuff. He's rather wonderful with the probe, Frances. He can find anything with it. So just before we left, he told me to tell you he's using it for himself. He's trying to find a girl he can like as much as he likes you. He says the probe says there's one among the released prisoners.

"The probe says so. But he hasn't caught up with her yet. She keeps moving around. He's sticking to the job of finding her, though. And then, too, he wants to go on and help wipe out the other bases."

Frances looked up at him in alarm.

"But you won't go, Steve! You'll stay here, won't you? If it—if it wasn't so crowded, this house would be wonderful to live in!"

Steve smiled.

"It won't stay crowded, I suspect. And anyhow I'll remain right here and do some experimenting. We've started a new kind of science and I want to dig into it. That business of molecular motion, now—" Then he stopped. "I brought back what I told you I would. Found him among the released prisoners. He didn't mind coming for the job on hand."

Frances stared. She peered around Steve's shoulder at the patient-faced man—thin as from long hunger—who had taken Lucky Connor's place on the return journey.

She suddenly flushed crimson.

Steve reined his horse aside and beckoned to the thin man.

"Reverend, here's the lady," he said contentedly. "If it's all right with you, we'll have the wedding this afternoon."

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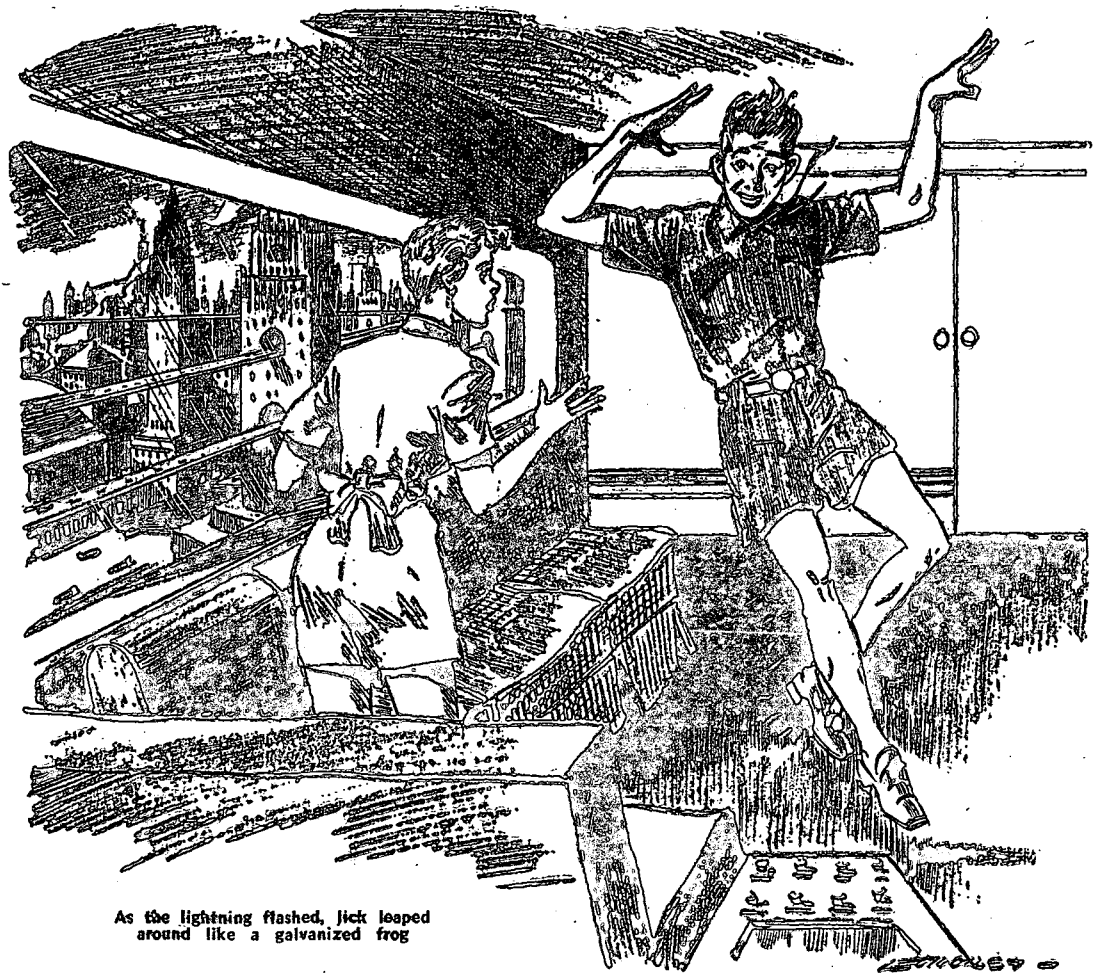

As the lightning flashed, Jick leaped around like a galvanized frog

THE SOMA RACKS

By MARGARET ST. CLAIR

Weary of her husband's lethargy, Oona, wife of the future, administers a vitalizer — with some very dizzying results!

SIT, Oona thought resentfully, that was all he ever did, just sit. You'd think he'd be covered with calluses by now. Ever since he'd been laid off at the space port, he had been sitting in the sunny patch by the window, chewing geela nuts and scanning the stereo. She was sick of it.

Not that Jick was a lazy man. He was a good hard worker whenever he had a job, and he was sure to get soemthing soon. In a lot of ways, he was an ideal husband. He was affectionate, he was thoughtful, and he always remembered anniversaries. Really, she was crazy about him. Only he *sat* so darned much.

She steered the electro-static cleaner close to her husband's feet.

"Pick 'em up, honey," she said.

"Hunh?"

After a moment, Jick slowly raised one foot and then, perceptibly later, the other. Eighty seconds or so after she had finished

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cleaning under him, he put his feet down again. His face was wearing that dopey look that bothered Oona so much.

And if she asked him to do something around the house, he acted as if she were trying to murder him. Last week he'd got a burst of energy. He wanted to make something, he said. He'd worked on it all day. Well, what had he made? A rack for used soma bottles. Soma bottles, for heavens sake! They weren't attractive in any way, and they haven't even any economic value. Most people ran them through the garbage reducer and were done with them.

Meanwhile the element on the electronic range needed something done to it—it took nearly twenty minutes to cook pot roast—there was a fly in the house because the lethax at the windows hadn't been renewed, and the steam beer tap in the kitchen leaked all the time.

Oona finished cleaning the eutex. She put the cleaner away in a foot locker and went into the bedroom to glaze her face and rest a minute before starting lunch. While the cosmetic-soaked pads were drying, she picked up a magazine and began flipping over the pages.

Zibeline was *the* color this season, it seemed, and Venusian quohogs were winning wide popularity in the stereo colony as pets. Maddi Trax was having twin baby girls in April and . . . . An ad caught Oona's eyes. It ran:

Do they call you LAZY? Do you lack energy, ouff, push? Henderson's Vitalizer was made for you. It floods the cells with radiant energy from the sub-molecular cosmic fountains. Not a chemical, not a drug. Harmless. Permanent. Cumulative. Recommended by Consumers' Institute. Ask to see it at your stereo dealer's.

H'm. Consumers' Institute was, on the whole, reliable. The metallic dust Oona used on her hair was recommended by them, and so was her eye do. And it didn't seem to her her that she could *stand* another day of seeing Jick sitting in the corner, the only mobile thing about him his slowly moving jaws.

SHE stopped in at the stereo dealer's on her way back from mart.

"Henderson's Vitalizer?" he said. "Sure. We sell a lot of them."

He reached under the counter and brought up a small, square, silvery box. Its edges had a peculiar wavy, elusive quality. Oona's eyes had trouble in making them stay still.

"The Henderson people have done a sweet engineering job on this model," he said. "All the power and special features of the cabinet size, and it weighs less than a kilo."

"How does it work?"

"It taps the sub-molecular quanta of energy on the cosmic level and relays them directly to the nerve cells."

"Hunh?"

"I said, it taps the sub-molecular quanta—"

"Oh, never mind. . . . Is it harmless?"

"Harmless? I should say so. I use it myself. It's fully guaranteed. Only thing is, you want not to overdo it. It's darned near permanent, the way they say, and it's cumulative, too. There are times when you don't want to have too much energy."

Oona looked at the Vitalizer again.

"How much is it?" she asked.

He told her. She sighed.

"Full instructions come with it," the dealer added persuasively.

"Well—I'll take it."

Reluctantly, Oona counted out the money into the dealer's hand. It was quite a lot, but it would certainly be worth it if it made a difference in Jick.

During the ride home, she studied the instruction booklet. All you had to do was to press the stud on the side—the Vitalizer was completely self-powered—and stand in front of the orifice from which, according to the booklet, the marvelous flood of truly cosmic energy was pouring forth. You shut it off when you were done.

Well. Jick usually took a little nap after dinner. It would be simple to use it on him then. She did hope it would work. The directions said not to use it for more than five minutes at a time.

After dinner she cleared the dishes from the table and waited in the kitchen until she heard Jick's breathing grow even and deep. Then she brought in the Vitalizer, set it on the table in front of him, and pressed the stud.

Nothing appeared to happen, though Oona watched with interest. Jick kept on breathing placidly, and . . . What was that smell? Had she forgot to set the chronnox?

She made a dash for the kitchen. Yes, the beets she had planned to pickle tomorrow had boiled dry. She dumped the repulsive mess into the reducer, ran cold water over the outside of the pan, and then put it to soak.

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For a moment Oona stood undecided. Should she cook more beets? Jick did like them the way she pickled them. On the other hand, the prepared ones were almost as good.

Oh, heavens! She had left the Vitalizer going. Oona raced for the dining apse and hastily shut the Vitalizer off. She looked at her watch. Seven minutes. Goodness. Well, maybe it wouldn't make any difference. Gee, she hoped it would be all right.

Jick got up early next morning.

"I feel fine today," he announced as he rubbed depilating cream into his cheeks. "Full of pep. I'd like to do something. Let's see, now. There must be a lot of things around the house it would be fun to do. Well, I'll think of something after breakfast."

Oona's eyes were shining. She blessed Mr. Henderson. The Vitalizer was wonderful. After breakfast she would remind Jick about the lethax and the element in the range, and maybe she could get him to fix the beer tap sometime in the afternoon. Golly. Golly.

He ate enormously—a whole rhea egg, four big slices of grilled bollo, and a towering stack of whost. He pushed his plate back with a satisfied grunt, and got up and stretched.

"Tell you what I think I'll do," he said. "I'll go out in hangarage and look around. All kinds of things in the hangarage."

He started toward the door. Oona stared after him. Oh, my. She would have to be careful. If he got started—

HE CAME back in ten minutes or so.

"Look what I found," he said happily, holding a roll of plastic-covered wire out to her. "Must be four or five hundred meters left. I think I'll make another of those soma bottle racks like I made the other day. Useful things."

Oona's mouth came open slowly.

"But—but—" she said.

Jick was paying no attention to her. He seated himself in his corner by the stereo, spread pliers, snips and press-weld out in front of him, and began to work.

Oona watched his fingers flying with a fascination that had in it a touch of horror. Certainly the Vitalizer had speeded him up. She had never seen him work as quickly as he was now, and he seemed to be going a little faster all the time. But another soma bottle rack They weren't good for anything, nothing at all!

He finished the soma rack in an incredibly short time.

"There!" he said, holding it up to her to admire. "Pretty quick, if I do say so myself. It took me all day for the first one, remember? And this one's better in every way."

He looked so happy and satisfied with himself that Oona hadn't the heart to say anything.

"It certainly is," she agreed, swallowing painfully. "It certainly is. Say, Jick."

"M'm? I think I'll try another one, see if I can't cut my time down some."

He was already unrolling wire and bending it. Before her eyes another soma rack was taking shape.

Oona retreated to the kitchen. She pressed her head against the cool glow of the chronnox and tried to think. It was the Vitalizer, of course. He had had an overdose. What was she going to do? It was a lot worse to have Jick busy making soma bottle racks than it was to have him doing nothing at all. He seemed to feel fine. It hadn't hurt him. But all those racks!

By lunchtime he had finished fourteen of them. He kept them around his plate while he ate—he had an appetite like a forest fire—and pointed out their merits to Oona with his fork.

"I'll see if I can't speed it up a little after lunch," he said brightly. "I certainly am getting good at it."

He was. Oona had noticed that his fingers were moving faster with every rack. Part of the time they were nothing but a blur. Faster all the time.

"But what'll I do with them?" she said, almost wildly. It was like the story of the man who had the magic salt mill he didn't know how to stop. It ground out salt, salt, salt until he was smothered under it. "What are they good for, anyhow?"

"Um?" said Jick abstractedly. Done with his third slab of pie, he was starting another soma rack. "Oh, they're nice just to have. Interesting. Lot of work in them. Or you could hang them around the walls of the room. For an ornament. I could drive a lot of nails for you."

Oona could have cried. . . .

She had been asleep for less than two hours that night when she was awakened by a stealthy movement by her side. "'S mat-

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ter?" she asked somnolently.

Jick patted her on the shoulder. "You go on back to sleep, honey," he said. He was talking a lot faster now, too. "I don't feel a bit sleepy, somehow, and I thought I'd get up and—"

"Make some more soma bottle racks?" Oona cried.

"Why, yes. How'd you know?"

She heard him stumbling over the furniture as he progressed toward the living room. There was a damp tear spot on Oona's pillow before she got back to sleep. . . .

She stuck it out for two days before she went back to the stereo dealer.

"You've got to do something!" she cried. "It's terrible! He'd made three hundred and six of those things when I left the house, and there'll be a couple of dozen more when I get back. He sleeps less than two hours a night, and our food bills are four times what they used to be. I can't stand it. You said the Vitalizer was guaranteed, didn't you? All right, do something!"

"It is guaranteed," the dealer said reprovingly. "You must have given him an overdose. I warned you about that."

"So what? A guarantee ought to mean something."

"It does. The Vitalizer hasn't harmed him in any way, has it? He feels like a million dollars, doesn't he?"

"But I don't care! It's busting up my home! If you don't do something, I'll sue you for everything in the book!"

THE dealer popped a geela nut into his mouth and chewed slowly while he considered.

For several moments he kept silent.

"Tell you what I'll do," he said at last. "There's a new product on the market, just came in today, called the Tranquilate. If you want to try one on your husband, I'll let you take it home, absolutely free of charge, and see what it does. It's supposed to relax hypertension, and reduce irritability of nervous tissue to stimuli. They all say it's a wonderful thing."

"You mean it might sort of tone him down?"

"Well, it should."

The afternoon was muggy and hot. Oona was damp with the perspiration of anxiety and haste before she got home with the Tranquilate. Jick was sitting where she had left him. The level of the pile of soma bottle racks was perceptibly higher than it had been.

"Hi!" he greeted her. He was talking so fast now that she could hardly separate the words. "I made twenty-eight more while you were gone."

Oona nodded and hurried out to the kitchen, the Tranquilate—it was less than twelve centimeters square—in her marting bag. You were supposed to plug it into a socket and let it warm up for five minutes before you began to experience the relaxing, soothing, irritability-relieving effects of the elimination of hypertension. Okay. Okay. How was she going to use it on Jick?

She solved the problem by popping the Tranquilate into a thermoplex casserole and standing behind Jick with it while she fiddled with the knives and forks on the table. If Jick looked up, her body would be hiding the cord from the Tranquilate. He would think she was setting the table for dinner or something. Meantime it would be acting upon him.

The plan worked very well. Jick noticed nothing, and Oona was able to give him the full thirteen-minute exposure to the Tranquilate the instruction booklet advised. Then she slipped the device back into its box in the kitchen and stood watching Jick from the door.

For a few minutes nothing happened. Then Jick's hands froze into immobility above his work. His eyes grew blank, his face took on an expression of glassy, paralyzed, Oriental calm. The fly that had got in through the lethax buzzed around his head and settled on his left eyelid, but he made no move to ward it off. He seemed to have stopped breathing. He looked like a soul which has attained Nirvana, only dopier.

Oona was appalled.

"Oh, Jick, honey!" she cried. "What's the matter? Jick, what is it now? Honey, speak to me!"

He did not answer her. His jaw had dropped down, the fly moved from his eyelid to his lower lip, and began crawling around outside his mouth. Oona rushed up to him and shook him, and his body moved to the action as if it were one solid piece. Her hand pressed to her forehead, Oona regarded him feverishly for an instant.

The seizure, or whatever it was—the manufacturers of the Tranquilate would probably have called it a complete relaxation of hypertension—lasted for about five

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minutes, during which Oona, distracted, did everything she could to bring Jick out of it short of throwing the chronnox in the kitchen at his head. Then it was over as suddenly as it had begun, and he was making soma racks again, his hands a shapeless blur from speed. He gave no sign of having experienced anything unsual.

From then on until dark Oona timed him. The periods of activity lasted, she found, exactly twenty-five minutes. The spells of paralysis were slightly variable in their duration, but the average was four and three-quarter minutes. He was as regular as a geyser. The Tranquilate, it seemed, had not neutralized the Vitalizer, but had merely overlaid its effects with its own.

Oona didn't know what to do. She pulled a seatette out of the kitchen wall and perched on it, trying to think, and listening to the growing rumble of thunder in the east. Her chin was quivering, and her eyes were wet with tears which kept slopping over and running down her cheeks.

WHAT had she done? Busted the nicest husband a girl ever had, that's what, and all because she objected to his sitting around and getting a good rest. She could kill that stereo dealer! If Jick ever got over it, he could sit around till barnacles grew on him, and she wouldn't say a single word.

Would he get over it? Would he? The dealer had said it was permanent. She could take Jick to a doctor, of course, but it hardly seemed like a case for the medical profession. There was nothing wrong with Jick's body, anyway. He didn't need a doctor; he needed something more like an electrician or a mechanic. Oh, she would give anything in the world to have him sitting in the corner once more, scanning the stereo and chewing geela nuts.

The thunderstorm was getting nearer. The interval between flash and rumble grew less and less, and the jagged streaks in the sky seemed awfully close. Oona wasn't exactly afraid of lightning, but it made her uneasy. Even though Jick in his present state was about as much comfort as a turret lathe, she went into the living room to be near him.

By now it was quite dark. Oona would have liked to turn on the flurors, but she felt nervous about pressing the stud with all that electricity flying around outside. Every time one of the long vivid flashes ripped the sky apart, she could see Jick in his corner, working away.

She pulled up a hummock of electrifluffed nyloflock and sat down on it, her head pressing against her husband's thigh. He had gone into the dopey part of his cycle now; his furious activity had been replaced by immobility, and she couldn't even feel him breathe.

Suddenly he began working again. What? Why, it hadn't been nearly four minutes yet, not nearly. He stopped abruptly, started working again, stopped, started, stopped. Oona looked up at him in the cold white radiance of the almost continual lightning flashes, her eyes wide with apprehension and surprise.

Abruptly he got up from his seat and walked into the center of the room. Oona, feeling that she couldn't stand much more, saw that pale blue fire, like soma burning, was playing over his body and dripping down in long gushes from his head and arms.

Jick began to dance. As lightning flash followed flash, he leaped from one ungainly posture into another, as stiffly as a galvanized frog, in an uncanny, horrifying version of the highland fling. Oona screamed, but the sound was lost in the vast artillery of the thunder overhead. The blue fire dripping weirdly from his outstretched arms, Jick continued to cavort and dance.

There came one last tremendous thunderbolt, so bright it seemed to sear the eyeballs, so loud the house shook under it, and then the rain started to beat down upon the roof.

Jick stood still. The horrid blue fire began to die away from his body and limbs. Oona, strained her eyes toward him in the gloom, fearing what would happen next.

For a long moment there was no noise except the steady drumming of the rain upon the roof. Then Jick cleared his throat.

"Say, listen, honey," he said in his normal voice. "What's the idea staying here in the dark? Whyn't you turn the flurors on?"

Oona went up to him, her knees feeling all wobbly and soft. He sounded—he sounded... Oh, could it be that the storm had cured him? She laid her hand timidly on his shoulder and then, yielding to emotion, threw her arms around his neck.

"Why, what's the matter, sweetheart?" Jick said. He was holding her in a sweet, close embrace. "What's the matter with my

(Concluded on page 93)

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A Hall of Fame Novelet

WHEN PLANETS

EDITOR'S NOTE: Some stories are forgotten almost as soon as they are printed. Others stand the test of time. Because "When Planets Clashed," by Manly Wade Wellman, has stood this test, it has been nominated for SCIENTIFICTION'S HALL OF FAME and is reprinted here. Outstanding fantasy classics are honored in each issue of this magazine. We hope in this way to bring a new permanence to the science fiction gems of yesterday and perform a real service for the science fiction devotees of today and tomorrow! Nominate your favorites!

FOREWORD

MY PART in repelling the attempted Martian invasion of Earth in the years 2675-77 was a limited one. As for my skill in telling of it, I again recognize my limitations. Many learned and authoritative writers have said their say about our first and only interplanetary war. I, who am no writer at all, add to their works only because of a request from men in high places, who argue that my story is a unique chapter in that conflict's history.

Like wars of earlier times, the Martian-Terrestrial hostilities had a deep foundation in mistunderstanding. Several hundred years previously radio communication was first established between the worlds and, shortly afterward, intrepid Martian scientists reached Earth in a pioneer space-ship. They were welcomed with both hospitality and suspicion.

Much was said to their faces of brother-

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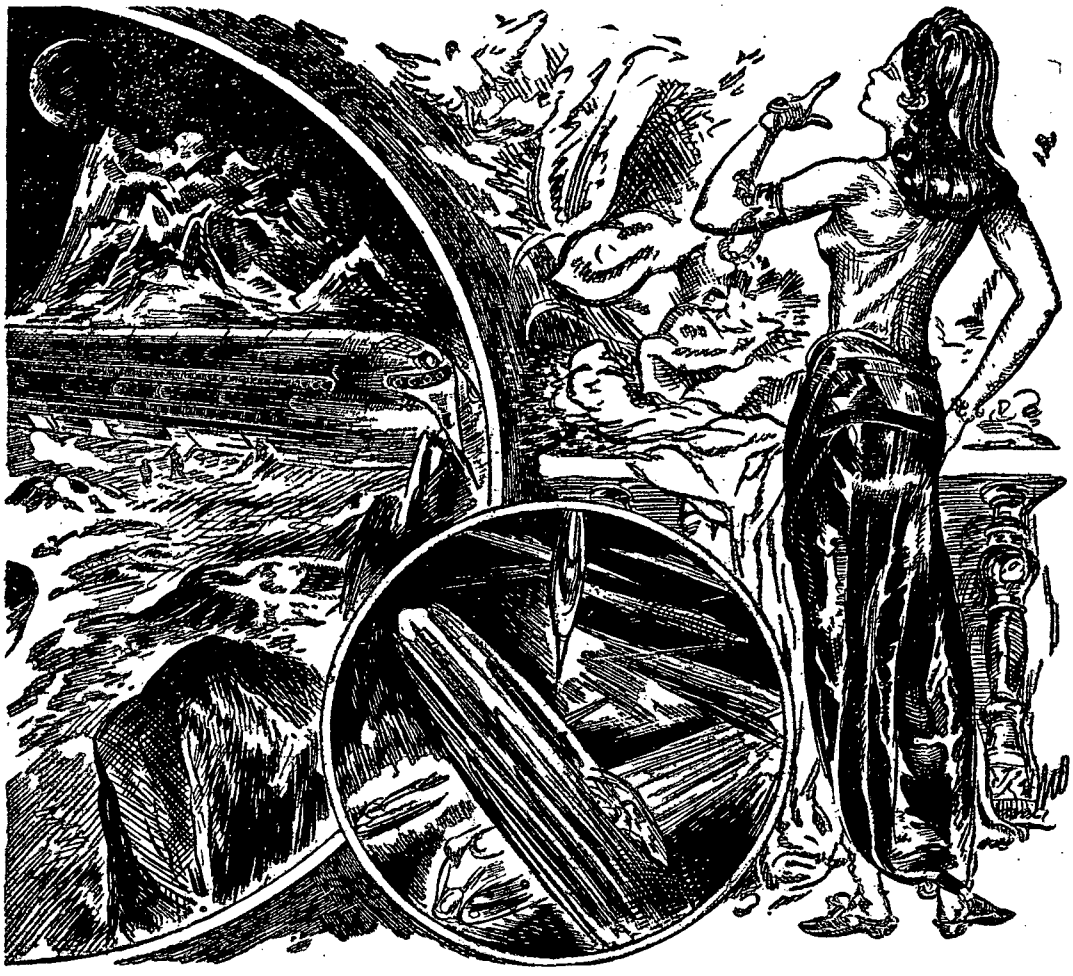

CLASHED

By

MANLY WADE WELLMAN

hood and good will across the emptiness of space; much more behind their backs of preparation against possibly dangerous visitors from the only other inhabited planet in the solar system. In succeeding years, whenever the orbits of the two worlds brought them into comparative proximity, a flourishing exchange of trade goods and tourists sprang up, and potential enmity as well.

The first strain in interplanetary relation came when representatives of the World League rejected the request of the ruler of Mars for permission to establish colonies on Earth. When the Martian executive protested that his planet, with deserts where oceans once stood, was dying, he was told that Earth was rapidly approaching a similar condition and it could not engage to feed mouths from across space.

This and other differences did not help to maintain good feeling. Then one day a party of Martian tourists, riding in a sight-seeing car at St. Louis, seat of the World League's government, was surrounded by a crowd of roistering students. One wealthy Martian ordered his retainers to clear a way for the car.

A fight ensued, in which the Martians were severely beaten with sticks and cudgels. Three of them died, including a man high in office on his own planet. Others sustained bad injuries.

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The ruler of Mars sent a brusque demand by radio, calling the incident a proof of Earth's enmity. He asked redress for the families of the dead Martians, as well as the surrender of the Terrestrial rioters, then held in jail at St. Louis.

In the meantime, he proposed to seize and hold as hostages all Terrestrials then upon his planet. In this way it was expected retaliation might be made and the determination of Mars to see this thing through be shown.

After a brief consultation, the World League's representatives empowered their president, Silas Parrish, to send an even more blunt reply. In substance it refused the demands of the Martian ruler and also accused him of seeking an excuse for war with Earth. As for the Terrestrials he held, the World League sent its police to arrest all Martians on Earth as a retaliation.

This was followed by agreement to release hostages on both planets, and the return of the captives to their own planet. I was among those deported from Mars, and with my experiences at that time I begin this account, endeavoring to make it both accurate and readable.

JACK STILLWELL

CHAPTER I

Farewell

OF ALL the Terrestrials up on Mars at the beginning of hostilities, few, if any regretted more than I the order to return to Earth. Five years before, at the age of twenty, I had come to Mars as the youngest member of the Terrestrial Legation. My ties at home had been light, for I was an orphan, and I had gladly come to this strange planet to lay the foundations for a career and a fortune.

I had not suffered on Mars. In the years when one progresses from youth into manhood he gets much out of life in the way of pleasures, knowledge and friends. The latter, to me, were Martians of my own age. I found them understanding, responsive, square. We talked togther of the good times to come when, grown to the leadership of our worlds, we would make for yet a stronger and closer alliance. And I had met Yann.

Yann to me was more sweet, more lovely and more loveable than any woman of my own planet—Yann, dark-faced, alert, with the flashing Martian black eyes and quick understanding. When her hand first touched mine in greeting I felt its pressure upon my heart. And would this war lose her to me?

On my last night in Ekadome, the City of Martian Rulers, I left the company of my fellow Terrestrials as they sat in groups at the rocket port and glumly discussed the impeding conflict. We were hemmed about with guards, but the commanding officer of the port was my old friend. To him I made my plea, and he readily accepted my parole and sent me, with a servant, to find a closed Martian electro-car.

"Back an hour before dawn," he warned me in the quick staccato Martian tongue. "When the sun rises, your ship clears."

The car whirled me through subterranean corridors to my destination. I stepped from it at last, and found a lift. The operator thought nothing of me, for, with my Martian clothes and haircut, and the deep tan of three summers in the Martian resort, Pulambar, I had little of the Terrestrial in my appearance.

He complied with my request to be taken to the upper levels, although, had he known my origin, he would have raised a shout that would have brought citizens of Ekadome to mob me. I reached the open air but five steps from a dear gateway I had come to know well.

Inside was Yann's garden, roofed over with a transparent, vitreous veil to shut out the cold night air. Blossoms as large as tabletops and of wildly gorgeous colors lined the path on either hand. Beyond them I saw Yann, on a seat beneath a clump of plants like giant, many-tinted cattails.

I swiftly reached her side. As she offered her hand I touched it with my lips for the first time. It quivered like a startled bird, but did not draw away.

"Sit down, Chac," she invited in her delightful Martian tongue—quick and vibrant.

"I have come to say goodby."

"Goodbys should never be said," volunteered another voice. It was Yann's brother, Nalo, who had been lounging in nearby Martian shadows. He now came forward to press my palm between both of his, Martian fashion. "Whatever our foolish worlds may do, Chac, you and I are friends."

"Friends and brothers," I replied.

"Well you may say that the worlds are foolish," said Yann as we sat down with her, one on either hand. "Every great man in our council tells the reason why we went to war, and each reason is different from all the others."

"The real cause is that we two peoples, while similar in appearance, are different in language and customs," said Nalo. "We find it too hard to speak each other's language or wear each other's clothes."

"Chac wears Martian costume and I don't object to his accent," said Yann. "It makes him charming."

She smiled to me as she spoke and for

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such a smile I would gladly have died. I cannot tell you how oval was her face, how black her hair; how her figure was at once regal and delicate, how her every motion was grace quickened to life, how her glad spirit gave a light that illuminated my dark mood like a lamp. These things are sacred and have no place in a history of bloodshed.

"War is a childish thing in any case," went on Nalo. "Somewhere in the history of your world, Chac, a war was fought against organized criminals. With that exception, I can tell you of no fighting that was ever good or wise."

"You are right," I agreed.

"However, I don't think that there will be a long conflict. It is thirty days or more between worlds. During a space-ship's flight of that duration, friendship might last, but not hate. We shall all gather and laugh at this thing before we are a great deal older."

"Nalo is right there, too," smiled Yann. "The silly trouble will soon be settled. Then, Chac, you can come back to us."

"Yes," I said, "I can come back to you."

BACK to them—to her! The words in her mouth seemed so true, and were so much what I wished! I looked at her in adoration. Nalo read my heart and his white teeth flashed in a grin.

"There are guests inside," he said. "I must beg to be forgiven if I go to help my father entertain them. Chac, here is my hand between yours. May we meet again soon!"

He strode away, as true a gentleman as ever breathed the air of any planet. A door closed behind him. I turned to Yann.

"He knew I wanted to be alone with you," I said.

"With me? Delightful!"

The tears fought to break from my eyes, for I was very young, very miserable, and very much in love.

"Yann, dearest—" I choked. "How shall I say that I must leave?"

She put out her hand as if she knew how eager I was for her touch. As I clasped it in mine and bowed above it, the finger of her other hand rested lightly on my hair. So we stood silently for a second then our arms went around each other and for a blessedly aching space we kissed. Her eyes flickered shut in ecstasy, then opened and looked into mine.

"Sit down, Chac," she said.

I did so. She dropped onto the seat beside me, fondling my hand.

"We love each other," she said, "and now we must be worlds apart. But, my dear, let us be brave for each other's sake."

I nodded silently.

"You are returning to your earth. As a young man, you will be ordered to do your part in fighting my people."

"Never! Never!" I cried passionately. "I will go to prison before I make war on you and yours."

"No, Chac," she said. "That is not the way to think. You are a Terrestrial, beloved, and you must be true to your birthright. Do your duty as it is required of you. Work or fight, as you are bidden. Whatever you do, do it well and honestly. And, oh, Chac, try to avoid danger. Live through whatever befalls you, and come back when the war is over!"

I kissed her trembling mouth again and, holding her close, vowed that I would return to claim her if I lived. At last, when time came for me to return to the rocketport, I carried my head high and stifled the pain within me, for I gloried in the new-found love that Yann bore me.

We deported Terrestrials left Mars on the morning of January 2, 2675. On February 8—in those days the interplanetary passage took a month or longer—our ships slid into the atmosphere of Earth and settled onto the landing stages of the New Orleans rocketport. We emerged from the hatchways to be surrounded by port attendants and officers, eager to talk to us about Mars as we had last seen it. Was the Martian morale good? Was the preparation for warfare far advanced? Had we suffered indignities? And a thousand other queries.

In turn they gave us the latest news. Although our ships had been unmolested by the enemy (for such I knew I must thenceforth consider the Martians), several skirmishes had flared up between opposing patrols in space. One young officer, a red-faced lieutenant who was very vain of his expensive new uniform, had told me that only two days before he had helped beat back a combat group from Mars which had ventured to within a half million miles of Earth.

"They're going to be harder to whip than the news dispatches say," he told me. "However, we did plenty with our new ray-guns. If you've been away for five years, you can't have heard much about the disintegrator ray. Want to have a look?"

He took me to a long, rakish warcraft that rested on a stage nearby and in the gun room pointed out a complex system of levers and coils.

"Here is the target finder," he said. "Television, of course. With it you can locate and aim at a range of a thousand miles or more, though the ray itself won't be effective so far away. On the space-dreadnoughts there are long-range poppers that can do the busi-

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ness at many times that distance."

He fiddled with the mechanism. "Once you spot the target, you put the 'finger' on it—the ray, that is, just like turning a searchlight on some object—and press this lever. Whatever is at the other end will disintegrate on the moment. It's all more complicated than I can explain, full of atomic explosion formulas and the like."

"Did you get many Martians in the fight?" I asked.

"We washed out a dozen or so. I finished two myself, with this very ray-gun. So." He turned on the power. The finder showed us a distorted view of tall buildings.

"That's right here in town. Suppose we were attacking Shreveport." He spun a dial rapidly. A new skyline rose into view. "Now, if the ray was working, and I cared to, I could knock off that tallest building 'way up the Mississippi, as easily as I did those red and white Martian ships day before yesterday. Snip! Like that!"

"Red and white Martian ships?" I repeated. "That would be the Young Defenders. They're a junior sky corps, Martians about our age or a bit under. I know some of the officers. They're very decent fellows."

THE lieutenant looked at me queerly.

"That's a bad way to talk, now that we're at war," he said. "Martians are more appealing as targets than as house guests, just now."

"Rot!" said I, nettled. "You'd be glad to know such chaps at any other time. Can't we be sane about this scrap?"

He studied me with narrowed eyes as we left the ship.

"I'm not at all sure," he said in parting, "that I should have told you so much about the ray-gun."

He was too clumsy in his suggestion that I was a Martian sympathizer. Had he been less so, my temper might have gone. As it was, I laughed and walked away, but the discourse left a bad taste in my mouth which lasted all the way to St. Louis. There I went at once to the office of James Stillwell, staff member with the Intelligence Department of the Terrestrial Army. This man, my uncle and only living relative, was also my closest friend on Earth.

His duties were many, but he turned from them in a second to give me a warm welcome.

"You are home safe and happy!" he cried, forcing me into a seat.

"Not so happy, uncle," I told him.

"That girl on Mars, eh?" I held few secrets from him. "Well, Jack, I hope that you won't distress yourself too much about her. This is war, my boy, and there will be enough blood spilled to wet the way clear to Mars and back again before you will be able to see her. Are you going into the service?"

"That's why I'm here."

"Good boy! And what branch do you want to enter?"

"I haven't made any choice."

"Then you need go no further than the Intelligence. You're young, smart, and just back from a long stay on Mars. Men like you are invaluable. We'll have you in a uniform this very day. What is your reserve rating? Captain, I think? Right? Well, come along."

I did so, glad for his wholesome cordiality. Yet my determination to do my utmost was fostered, not by anything that he said, but by the words of Yann, who had urged me to work or fight my best, even against her people.

CHAPTER II

Raiders from Space

WE OF Earth began the war in excellent spirits. We were mightier in numbers, richer in all resources, save metals, than the Martians. They had the better of us in volume of fighting materials—space-ships, ammunition, the thousand things that armed forces must have—but we did not expect them to be ready for a decisive attack upon us for quite awhile.

In the meantime the planets were swinging apart and two years and more would pass before they drew close again—ample time for us to gather and equip forces for our defense.

The new disintegrator ray-gun, the same weapon that was explained to me on the day that I returned from Mars, was one of our chief hopes. It was rightly believed to be far superior to the roving bomb, which was directed and exploded by radio controls and which, as a deadly weapon in aerial warfare, had often been used in the past by both Terrestrial and Martian nations. The ray-guns were being manufactured in quantity even as I came back, while thousands of young volunteers were learning their use and mechanism.

That the Martian agents would attempt to carry news and working plans of this device to their people was, perhaps, the chief fear of our High Command in those days. The Intelligence Department and its attendant throngs of operatives kept constant watch upon factories, broadcasting stations and other points.

Every message put on the wires or the air was rigidly censored. As an Intelligence officer, therefore, I found plenty to do to keep from brooding on what I had left behind

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me on Mars.

On April first, 2675, war came in earnest, as dreadful as it was unexpected.

So suddenly were the raiders upon us that we knew it not. They struck Earth effectively in three places. Steel mills in Labrador, built to accommodate the large quantities of ore mined in the Republic of Greenland, were blown to bits in the night by roving bombs, while the attackers fled without being seen.

In the same hour, at Flagstaff, Arizona, the observatory and the interplanetary broadcasting station located there were demolished by a flight of Martian space-ships which were sighted but escaped unharmed. As noon of April first approached and sunset came to the other side of Earth, barracks at Algiers were smitten and two thousand newly-recruited soldiers killed like so many ants.

Vengeful swarms of Terrestrial ships sped into space, searching here and there, but to no avail. The Martians, their errand done, showed the cleanest heels in history, while the pursuers were forced to return for want of a trail in the trackless sky.

But return did not bring rest. Two nights later the Martians were back again. They neatly knocked a row of meteorological laboratories from the tops of the Rocky Mountains, as boys knock birds from a branch with stones.

Factories and warehouses at Rio di Janeiro were smashed to rubbish. At Nashville the raiders swooped down, but found a hot reception. Ray-gun defenses disposed of five and sent the others away, their errand of destruction brought to nothing.

In the morning this last incident was being celebrated as a victory by short-sighted folks, but those with whom the combat rested were really worried, the Intelligence Department most of all.

It chanced that I was in the office of my uncle when two of his fellow staff-members, Clyde Atrim and Gundell Goldansky, burst in. I rose, saluted, and started to go, but Atrim waved me to a seat.

"You may as well hear us, Captain Stillwell," he said. "It's a pity that all the department isn't here."

HE SEATED himself across the desk from my uncle.

"Because we put the finger on those five feeble Martians at Nashville Earth must consider the war half won!" he exploded. "It was no credit to us that they were washed out. They foolishly exposed themselves and, had they escaped, they would have been sure to draw reprimands!"

"The sad thing is," continued his companion, "that they'll be back again, tonight or tomorrow night or the next, at some point. Every raid cripples us worse. They're wrecking our factories, killing our fighting men right and left. We'll have to put a stop to them, or Earth will be whipped inside of three months."

"It stands to reason," argued Atrim, "that there aren't a great many of them, or they wouldn't hit and run. They'd stay and make a battle of it with our patrols. I'm willing to wager that the raiding parties are the same in each case, a small group of fast space-ships. They can dash out from hiding, strike at a previously designated spot and dash back again."

"Where is their base then?" asked Goldansky. "They certainly aren't flying to and fro from Mars every night."

"Hardly," said my uncle. "The interplanetary passage must be more than a hundred and twenty million miles just now. That would take a tremendous ship, and the journey would last three months or more."

"Then they must be on Earth somewhere," said Goldansky.

But, though thousands of air-scouts patrolled the entire surface of the globe next day and investigations were ordered in every community of every nation, nothing was learned. But, on the second night following the conference in my uncle's office, the raiders struck once more, bombing government granaries in Siberia.

Early next morning, as my uncle and I ruefully discussed the radio reports of the attack, Goldansky and Atrim, the latter carrying a suitcase, again burst into the office.

"We've spotted them!" cried Goldansky excitedly.

"Who?" asked my uncle."

"Why, the Martians!" said Atrim. "Look here!"

He opened the suitcase and dragged out a rumpled mass of metal-braced fabric, shaped roughly like a coverall garment.

"They shot down one of the space-ships in Siberia last night," he explained. "Luckily, it wasn't all disintegrated. Its equipment, which officers thought worthy of examination, was rushed here this morning. This was part of it."

My uncle considered the thing carefully, then raised questioning eyes.

"But it's only a space-suit, a standard piece of equipment in the lockers of any interplanetary ship."

"Only a space-suit, eh?" snapped Goldansky, almost belligerent in his earnestness. "Look at the thing's shoes!"

He pointed to them.

"They're worn and scratched, even if their soles are thicker and stronger than ordinary.

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Now, these suits are designed to allow repair work on the outside of ships while in space. Isn't that right?"

"That's right," said my uncle.

"But this one has done far more than that. Its owner walked on soil and rocks!"

Again we examined the shoes and saw that what Goldansky said was true.

"And then?" prompted my uncle.

"The rest is obvious. Why wear the thing while walking on the ground? The answer is that there is no atmosphere above the ground. And where is there such a place?"

MY UNCLE gave a shout as understanding burst upon him.

"Why, they're on the moon!"

And I saw how possible it was. In those days we paid little or no attention to Earth's dead child, hanging in the near heavens without air or water. Adventurers, scientists and cranks had made some small explorations but there it ended.

One of the few true benefits of the war was that we came to learn what great mineral treasures our satellite held. Today citizens, mines and factories again bring life to its dead face.

But the Martians, I knew, had not so rich and pleasant a world as ours. Long ago, pressed for expansion room, they had reached and settled their own two tiny moons, breathing artificial air in cities that were covered with mighty domes.

What more natural than that they should see the possibility of similar use of our moon? The few hundred thousand miles to the earth could be traversed readily and quickly by fleets of small raiders, which could rain down destruction and escape to hiding again.

"Let's urge a punitive expedition at once," said my uncle.

"Not so fast," said Atrim. "We'll have to find their base first. Probably it is a small one, and the moon is large. The only thing of which we can be reasonably sure just now is that they are on the far side. The side toward us—always the same side, of course—would be too easily examined by telescope for their comfort."

"Better say nothing about this matter just now," said my uncle. "The Martian spies—and the city is full of them—mustn't guess that we know. Jack, do you mind leaving us while we discuss this affair? What you have heard is, I know, safe with you."

I rose, but Goldansky held up his hand.

"Let the captain stay. I think, in fact, that he should know everything we say."

"Why so?" asked Atrim.

"Because my suggestion is to send a single scout to find the headquarters of the Martians. He can be swift and unobtrusive. They would be aware of a large force, but one man could find them and come away unseen—the more because they wouldn't be looking for him."

"I agree with you," said my uncle.

"I agree also, and see your point in keeping Stillwell's nephew here," added Atrim. "What man could be a better scout than he, with his knowledge of Martian affairs?"

"Do you mean for me to be a spy, sir?" I asked Goldansky.

"Not exactly. Just to find out all you can about the place, if it exists at all."

"It would be a glorious adventure," said Atrim.

"And a dangerous one," supplemented Goldansky.

"I hope that you don't think my nephew will balk at danger," put in my uncle.

"Not in the least, but he should understand all the risks of the enterprise."

"I'd gladly go, sir," I said. "I'm flattered that you think me worthy."

"Good man!" said Atrim, offering his hand.

The greater part of the morning was spent in preparing for my dash. The moon, as Earth saw it, was new and therefore would be nearly full as observed from the far side. I studied exhaustively lunar maps and photographs and made copious notes. The space-ship which was selected for my use was a one-man observation craft.

It was long, narrow and sharp-bowed, almost needle-like in proportions, with barely enough cabin-room to accommodate one man, lying at full-length. Although it had no armament of any kind, its television and radio equipment was of the highest order and it was designed to achieve and hold tremendous speed.

Before entering I donned a space-suit, all save the airtight metal helmet, which I placed in the cabin locker. This suit was of Martian make, which, as it later turned out, was a piece of good fortune. In its pockets I put an automatic pistol, loaded with fifty shells. At a few minutes before noon I was ready to depart.

"Goodby, captain!" said Goldansky, wringing my gloved hand.

"Take care of yourself!" this from Atrim.

"God bless you, my boy," was my uncle's farewell.

I STEPPED into the padded interior which, as the ship was raised on its stern like an obelisk, held me upright. The panel closed, shutting out the three friendly faces. Before my eyes was the television apparatus, already set upon the disc of the moon.

I touched the starter and, as my ship rose lightly from its moorings, shifted my fingers

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to the accelerator. Away I whipped, up, up into the blue, until I was past Earth's atmospheric envelope. Once in space, I increased to full speed and turned my eyes to where, on the screen, the moon bulked larger and larger with the passing minutes.

My craft seemed to hang motionless upon nothing. A glance out of the ports showed the starry black of space. Below my feet was the silvery full disc of Earth. Only the figures on my speed dials showed the breath-taking clip at which I was traveling; only the ticking of instruments and the rustle of my own movements broke the utter silence of my flight.

Some three hours after my journey began, with the face of the moon nearly filling my forward port, I cut down my speed. At a reduced pace I swung around the satellite's brightest edge. Its lightest portion changed from the shape of a sickle to that of a crescent, that grew and grew until, drawing close to it, I found myself sliding along a few miles above a bleak, mountainous region.

The topmost peaks, I knew, were far higher than any on Earth. Swiftly crossing them, I next skimmed along above a plain, hundreds of miles in extent. In one or two places there seemed to be straight furrows or ditches, full of shadows, that bore some resemblance to the smaller canals of Mars. My thoughts, going back to the waterways of that far planet, conjured up a vision of their own volition.

Once more I seemed to see Yann's lovely face, clouded around with dark hair, while she bade me to do my part in the war. Could she have foreseen my present task, would she still have counseled me so? I sighed, all alone in my hurrying shell. Then, slowing down until I floated almost motionless, I pondered the problem of my search.

I had to cover as much as possible of the moon's surface, and that within a very short time. The best plan, as I saw it, was to head for the center of the lighted area, mount to a position some fifty miles above ground, and there begin a spiral journey, watching the landscape through television.

Of course, there was the chance that the Martian force, wherever it was, might discover me first; but, since they were many and large and I was one and small, that chance was a slim one. And, even if they swarmed out after me, that by itself would show me where they were. Such knowledge once mine, I would trust to my craft's heels to give me a chance to make use of it.

Soon, therefore, I was travelling in an ever-increasing circle over the silent stretches. What appearance the Martian raiders' base would take I did not know, but I was sure that any movement or incongruity would be triply noticeable in the ghostly stillness below.

I flew over plains, over mighty mountain ranges and quiet valleys. The landscapes were as uncanny as those that arise in dreams. Often some strange sight impelled me to drop down for closer inspection, but never did I find traces of men or their works.

Hours passed. My chronometer, set in St. Louis, registered close to six o'clock. Another night would soon ride down upon my home—a night which might again bring the raiders—and I had not found their den as yet!

But just at that moment the television screen showed me something that brought my hands, all trembling, to correct the focus and clarify the image.

It showed me the interior of a crater, one of those that so plentifully pit the lunar surface. In it lay a dull-gleaming object of metal, cigar-shaped and evidently of great size. It was a Martian space-ship!

I glanced at my instruments, quickly calculated the crater's position, and fairly hurtled toward it. Unless a close lookout was being kept, aided by instruments for artificial vision, my little craft would appear only as a momentary flash of light. I therefore shot fearlessly to the very slope of the crater and then, after hovering for a moment, found a deep fissure into which I could lower my ship.

The shadows of the moon are as deep and black as pools of ink, for, with no atmosphere to diffuse the sun's rays, there is no refracted light. Therefore, when I had fastened on my helmet, emerged and mounted to the lip of the crack, I could not distinguish my vessel a few feet beneath me.

THE heat was terrific, even in my insulated space-suit. Yet I scrambled easily to the crater's edge, my Earth-trained muscles readily adjusting themselves to the reduced force of lunar gravity. Cautiously hiding behind a projecting rock, I peeped into the great depression below.

Thunder! What a space-ship!

The television had given me no definite idea as to the true size of the Martian craft. Now, looking directly down upon it, I was stunned by its vastness. It was fully a mile in length, and its greatest width, at the center, was perhaps 300 yards or slightly less. It tapered to a blunt point at either end.

In its interior must have been room for the laying out of a city, for the housing of regiments. Here and there on its upper surface bulged turrets and ports for observation, for weapons, for instruments. Along its sides were lines of air-locks for the passage of men—a few of them were moving around

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near the ship, specklike by comparison—or for smaller vessels.

In what secrecy had the monster been conceived and built? At what cost and labor was it operated? And how to conquer and destroy it?

With a growing chill of despair, I realized that no combat organization now in service with the World League could hope to vanquish so mighty a war vessel. Even a glance showed that, for offense and defense, it was equipped to a magnitude hitherto undreamed of.

It could spot a Terrestrial fleet and wipe it out at long range. Even our disintegrater rays would make small impress on its massive shell. My scouting expedition had availed little, after all. The thing was invulnerable!

Then a new thought came. Invulnerable, yes, as regarded assault from the outside. But might not a man find his way into it, and from there do much? I wore a Martian space-suit and was familiar with Martian manners. It was worth trying.

Boldly I stepped out from behind my rocks and began to descend the inner precipice.

CHAPTER III

Within the Ship

I REACHED the floor of the crater shortly and made my way toward the big ship where it towered aloft nearly a thousand feet. My path took me past groups of Martians in space-suits similar to mine, working in caves and pits.

They were digging up various minerals and putting them in bags and containers, while other groups carried these toward the ship. My presence seemed to create no interest, and so I joined one silent detail of carriers headed for an air-lock.

The leader rapped out a signal on the lock panel, which swung open and admitted us. We passed through the lock chamber and I found myself in a busy corridor which, as I walked down it, gave in turn onto a larger one. The walls and the ceiling were of dull metal plating while the floors were covered with some material that eased the feet and deadened sound.

Throngs of Martians, uniformed or in space-suits, moved hither and thither in ordered haste. Now and then a small vehicle with three or four wheels moved down the center of the passageway.

On either hand, I saw, the metal partitions were pierced with panels, and some of these were open to disclose offices, machine-shops, eating-rooms or apartments, just as on a city street.

Already the carrying party to which I had attached myself had disappeared. Unshipping my helmet and slinging it to my belt, I looked around. At first glance I would still pass for a Martian and no man paid me any attention, but on the other hand I felt as though I were wandering aimlessly. I had gained the inside of the ship; how was I to take advantage of my position?

With an effort at a casual manner I hailed a passer-by and asked him where to find the office of the commander.

He stopped and looked at me queerly. He was a black-browed fellow in the uniform of a sub-bomber.

"What commander do you mean?" he asked.

"Who but the commander of this craft, friend?" I returned.

"And do you not know? Answer me that!"

"Why answer to such as you?" I said, affecting haughtiness and turning away from his disquieting questions. But he shouted to other Martians, who hurried up. In a moment I found myself surrounded.

"What's this?" sternly demanded an officer in the uniform of a flight commander, who had been attracted by the ripple of excitement.

"He asks strange questions, sir," said the sub-bomber respectfully, "and he doesn't answer the ones I ask. I don't know him or his rank. If I spoke sharply to him, it was because I thought I should."

"You have done well," answered the officer, observing me narrowly. "By the cut of his hair this man is a Terrestrial."

"By birth only," I offered quickly. "I have never espoused the cause of Earth. I'm a deserter these six hours."

"Deserter? Here?"

"I stole a space-ship."

"And why did you come to this place?"

"To join you."

"You knew that we were posted here?" he queried sharply. "Not even our families on Mars know that—only a few officers in high places. Where did you get your knowledge?"

"I came on a wild guess."

"That is a spy's tale," he said scornfully. "If you were a real deserter, you'd have given yourself up a prisoner outside and wouldn't have sneaked into our corridors."

It was plain to see that my case was a sorry one and I racked my brain for more plausible lies to tell him. He sneered as he saw my confusion.

"Such zeal for a new cause is touching. The only trouble is that the whole story is too far out of focus. We aren't romanticists here, my Terrestrial friend. If you can't be

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more convincing you'll be dead before another day has passed."

He turned to the others.

"Make him fast. He's going to prison."

The black-browed bomber seized one of my arms and another Martian stepped up to help. For a moment I contemplated fierce resistance, but I knew how useless that would be. Already others were gathering around, and nearly all of them were armed. I resigned myself to this reversal of fortune, just as another officer, wearing the insignia of a staff member, pushed through to us.

The flight commander saluted, Martian fashion, with a slight quick bow and both hands brought smartly to the forehead.

"We've captured a spy, sir," he said.

His superior turned toward me and my heart began to race like a motor.

It was Nalo!

A delighted smile lit up the handsome face of my old friend as, with a shout of welcome recognition, he sprang forward and threw his arms around me.

"Chac! *Chac!*" he cried. "I never thought to see you so soon! What are you doing here with us?"

"As I tried to explain," I stammered, "I deserted the Terrestrials and came here by chance."

"Of course! Of course! How fortunate that you should do so!"

HE ADDRESSED the others.

"I'll assume responsibility for this man," he said, "and myself will turn him over to the commander's office. I trust him, for he was long a resident of Mars and is not in sympathy with those who brought on the war. Is that sufficient for you?"

"It is sufficient," said the flight commander a little glumly, as he saluted and walked away with the others.

"And what will happen when I go to the commander's office?" I asked Nalo when we were alone."

He laughed loudly.

"As if I would permit it? Heavens, Chac, are you not well out of this war? Forget it, with its foolishness and its horror. May all others learn to despise it as I do! No, you will be my guest here, no more. When the war is over—and it will be at the next opposition of the planets—you will go back with me to Mars, won't you? And there you will see Yann again!"

To see Yann again! And her brother Nalo, who promised me that, was one of the raiders whose destruction I was sworn to accomplish! I choked in emotion and Nalo, prince that he was, thought I was sobbing with joy.

"I'm very close to crying myself, Chac," he said gently. "Come, my apartment is near this place."

We went up by a lift and thence to his quarters. There I doffed the space-suit and my Terrestrial garments, while he gave me a plain Martian uniform from his own wardrobe.

"Lucky fellow!" he said as I pulled on the tunic. "No more war for you, ever!"

His words made me feel unutterably guilty as I stealthily retrieved my automatic pistol from the pocket of my discarded space-suit and tucked it out of sight in the waistband of my new costume.

He was delightedly ready to accept the story I told to explain how I had come to the moon. When I was fully dressed we walked out together, he chattering the while about this vast and wonderful mother-ship that was the raiders' headquarters.

It was manned, he said, by nearly 200,000 picked men, and in its hangars were a thousand swift combat ships. Nearly a hundred levels were included between its top and its base. The lives of its tremendous crew were supported by chemically produced foods, water and air, all successfully made on Mars for centuries.

"Such a vessel could conquer the world," I said.

"Not for a moment, Chac," laughed Nalo. "Its very size makes that impossible. Why, it couldn't be operated inside Earth's gravity pull—no, not if it was but half the size. The engines had all that they could to lift it away from Mars, where it encountered but one-third of Earth's gravity. Here on the moon, where an Earthman weighs but a sixth of what he does at home it is slow and clumsy enough. No, it is only a movable fort, a sort of hive for the little raiders."

He sent for food and we ate together in private. Then he left to attend to some of his duties as a member of the mother-ship's staff, leaving me to wander about freely.

Nalo's attitude made my task at once easy and hard. I was roving through the corridors, a Martian in appearance, able to view all the secret workings of the craft; but all this I did with a heavy heart, for only Nalo's friendly belief that I meant no harm had made it possible.

I hardened my resolve. I had been entrusted with a mission, and I must carry it through. My hand, and my hand alone, could halt the Martian raids on my native planet. Determined but downcast, I returned at last to Nalo's quarters. He was waiting for me.

"Back already?" he said. "I thought you would find enough to keep you interested for days."

"But I understand so little of what is going on, and I'm afraid to ask."

"I'll explain to you. Staff meeting's over.

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They're discussing the new raid on Earth."

"New raid?" I repeated. "Are they raiding again tonight?"

"You mean, of course, the night that is now on Earth. The lunar night won't be upon us for ever so long. No, they'll wait twenty-four of your hours and then shove off. It wouldn't do to have the raids too close together."

"Where will they attack?" I asked.

"Oh, Chicago and Omaha this time, to destroy factories for the building of space-ships. But why should you worry? The war is nothing to you, nor to me for the time being. I'm more interested in making a night of it. We have theaters, cafés, and there are three or four officers you'll remember. Shan't we have them in?"

"Not just yet, Nalo," I said, speaking slowly to control my voice, which was perilously near to breaking. "I'd much rather just visit all parts of the car."

"As you say. Where shall we go first?"

"Is it possible to see the atmosphere plant?"

"Absolutely. Come along."

His rank was sufficient passport to the sentinel who guarded the doorway to the small but complex laboratory. Inside, the workers showed us the machinery, the plans of the system, the control boards that hurried the air's circulation or shut it off, and the levers that could, if necessary, be operated to open big valves and exhale gases from the structure.

"These levers work thousands of vents," said Nalo. "As you can imagine, they can be put into many combinations. Don't touch them. You might evict the air from some apartment or corridor, and possibly it would cause trouble."

"But if all the master levers were thrown wide?" I asked.

"Then every gaseous substance in the whole car would be gone in about ten winks," said the supervisor of the plant.

"I see. If something went wrong, it might kill everyone."

"Not as bad as that. At the first hint of trouble with the apparatus, these automatic alarms would sound throughout the ship. There are space-suits in each apartment, and the men would quickly don them. Then they would be safe until all was running smoothly again."

We left, Nalo talking gaily, myself quiet and preoccupied. At last I knew how to do my duty.

IT WAS late when we returned to my friend's quarters. Nalo still wanted to invite our acquaintances in, but I begged him not to do so. I could not have stood it.

At last we lay down on separate pallets and I kept quiet until Nalo's breathing became measured in sleep. Then I carefully arose and donned my space-suit. The automatic I transferred again to the outside pocket. I searched until I located the exhaling valve which, according to the men at the atmosphere laboratories, was to be found in every apartment. This I carefully blocked with wadded cloth. Then I left, closing the panel tightly after me.

The lights were dimmed in the corridors and few persons were afoot. I went unchallenged to a lift which took me to the level of the laboratory. There I approached its doorway to find, as I had expected, a vigilant sentry on guard.

Unhesitatingly I walked toward him until he presented his automatic rifle and called on me to halt.

"Let me in," I said, the radio attachment in the helmet making my voice audible. "I have a message for the superintendent."

"Have you a permit?" he asked warily.

"Certainly," I answered, taking from my pocket a folded paper. As he reached for it, I suddenly sprang upon him. With one hand I grasped his throat, shutting off his cry of surprise and with the other I twisted his weapon from his grasp and flung it up the corridor.

Then, clenching my fist inside the heavy, metal-jointed glove, I struck him a heavy blow on the jaw. He dropped without a sound. Leaping over him as he rolled senseless at my feet, I pulled aside the panel of the laboratory, stepped in, and pulled it shut after me.

Half a dozen men were working inside. I quickly approached the air-forming machinery. The first of the workers to look up seemed to catch the menace in my attitude for, with an exclamation, he made for the alarm apparatus.

I snatched my automatic from my pocket and shot him dead in his tracks, hurrying forward as another dashed to take his place. We met in front of the instrument and, even as his hand was stretched out to press the button and warn all the thousands in the mother-ship, I brought the heavy barrel of my gun down on his head.

He slumped to the floor while I grasped the board to which the alarm mechanism was bolted and, exerting all my strength, tore it from its fastenings. A spark of blue flickered and died as the electric connections parted. It was wrecked.

Three of the others had drawn their guns. They now fired at me, all at once, but all three bullets, by some good fortune, missed me. The fourth man darted for the panel that led to the corridors.

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I aimed and pressed the trigger. No report! The blow that I had struck with my automatic had somehow jammed it.

Desperately I hurled the gun. It crashed against the back of his head as he ran, and he fell to his hands and knees, stunned. Now I was arrayed, empty-handed, against three desperate Martians, all armed. I quickly knelt to fumble for whatever weapons might be on the person of the man I had knocked away from the alarms.

That quick move downward must have saved my life for, at the same moment, all three fired again, then rushed me. As it was, one bullet grazed my helmet with a deafening rasp, and it would certainly have pierced me had I been standing.

I stood up as the trio closed in and, catching the nearest one around the waist, swung him from his feet and hurled him against his fellows. The three rolled, shouting, on the floor, together while leaping onto the squirming pile, I stamped and kicked as I knew how.

I planted a heel upon a skull and felt its owner subside. Another man rose to his knees, but went down again as I kicked him behind the ear. I sprang away and made for the levers that controlled the exhalation of the tremendous ship.

One man staggered to his feet and tackled me around the knees. Down we clattered, while he tried to stab me with a dagger. Its blade glanced from a metal rivet in my space-suit and a moment later I caught and twisted his arm until he dropped the blade.

Still he fought to keep me from the levers. My strength, developed on Earth, was more than twice his, but he was unhampered by a space-suit and nearly made up the difference in desperation. Through my helmet's goggles I could see his distorted face, now close, now receding, and today it remains the clearest memory of that fight in the laboratory.

For half a minute we wrestled and I could not shake him off. Stern knocking sounded at the door. Then it partially opened. At the same time I managed to twist the fingers of my left hand in my adversary's hair and jerk his head forward. Raising my right metal-lined hand high, I chopped him on the back of the neck with its edge. He collapsed and I twisted out of his grip.

At the door appeared a throng of Martians, most of them with weapons of various sorts. Astonishment halted them momentarily, else assuredly I would have been struck down. But already I had reached my objective. One master level I pulled—another—another and another, until all were thrown wide.

A sudden gust of wind seemed to shriek in the room and in the corridor beyond. The men at the door fell in a writhing heap. A strange black exultation, that had nothing of joy swelled in me.

I had succeeded in my mission.

CHAPTER IV

Traitor!

A HEAVY wrench was on a stand nearby. I grabbed it and attacked the air-forming machinery. At my first blow it rattled. A few more strokes stopped it entirely. Then I ran back to the master levers and so hammered and bent them that it would take some time and labor to move them from their position. This done, I sprang over the tortured forms at the door and ran up the corridor.

Everywhere, as far as I could see, lay dead and dying Martians. Singly and two and three deep they lay, silent or quivering, along my pathway. But I found a lift and quickly dropped it to the floor where Nalo was quartered. But a few seconds more found me at his apartment, from which, despite my precautions, air was escaping. Entering, I saw him gasping on the floor.

"Nalo!" I cried. "Up, man, there's no time to lose!"

I lifted him up and reached for his space-suit where it hung on the wall. He looked at me uncomprehendingly.

"Why, Chac? What has happened?"

"I've wrecked the atmosphere plant, Nalo," I said. "No matter how—I did it. I had to do it. But I can't let you die like the rest of them. Here, get into this suit."

He shook himself free and staggered away, supporting himself against the wall.

"Wrecked the plant, Chac? You? That's a lie—you wouldn't."

"But I did. Everybody is dying and, if you don't hurry, you'll die, too. Come!"

He struck my hands away.

"No help from you, you false friend!" he cried. "Now you have made me a traitor as well!"

He collapsed to the floor, his senses all but gone. My heart went cold as I knelt and pulled the suit onto him. He feebly resisted, but the effort took the last of his strength. I fastened the helmet onto his senseless head and let in some oxygen.

Unconsciously, his lungs drew in the life-giving element. I raised him and laid him on the pallet. Later, when my work was finished, I would return and save him. He would have to forgive me.

But other problems still presented themselves. In the corridors moved a few men who had been able to don their space-suits before it was too late. Perhaps they would

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find a way to recover their mighty craft, to prepare it and once more menace my planet. I must totally disable the mother-ship.

The lifts were stalled, and I ran up one flight of stairs after another until I came to the apartment where the radio-bomb controls were located.

Before me was a television apparatus. With its aid I sent one bomb after another roving through corridors and shafts. The first went to destroy the steering apparatus, the second to wreck the engineroom, the third to complete the work I had done in the air-forming laboratory. Last of all I directed one to a magazine aft, where a great store of bombs was kept.

A moment later the mighty ship trembled in every atom with the explosion. The ship would be utterly unfit for movement now, I knew. My final act was to turn my automatic upon the bomb controls themselves and, with a series of careful shots, put them out of commission. Satisfied, I again descended to the level of Nalo's apartment and entered.

The detonation of the magazine had torn metal beams from the ceiling. Two of them pinned him down on his pallet. With the strength of anguish I lifted them away. Too late! His back was broken.

But his dead face was no longer stamped with an expression of hate, as when I had last seen it. When he had died, loathing for me had not been with him. Tears ran down my cheeks and fogged the glass goggles of my helmet as I gazed upon the body of my friend and knew that at the last Nalo had found it in his heart to forgive me.

I turned away and, descending to the lowest levels, found an air-lock. I crept through this like some noisome creature and walked away from that colossal and stricken hulk. A little knot of Martians in space-suits signalled to me from the distance, but I mounted the inside wall of the crater unheedingly.

At the top I looked back once at the wrecked mother-ship. Truly, it would never again send out and receive raiders of the Earth.

After a brief moment of searching, I located my hidden vehicle. Once inside, I swiftly soared away on the road back. I took off my helmet and, tossing it aside, caught a reflection of my face in the dark, idle glass screen of the television. It was haggard, burning-eyed, sorrowful as death. My experience had wrought a deep and indelible change in me.

And that was the end of my adventure, the adventure which, in the minds of many, gives me an outstanding place among the individual heroes of the Interplanetary War. Yet neither then nor ever afterward could I find it possible to rejoice that it was I who wrecked the mother-ship of the Martian raiders.

I WAS apathetic enough when I arrived at the St. Louis rocketport in the early morning. Before I was through checking in my ship, the three men who had sent me came rushing up.

Goldansky was congratulatory, Atrim full of questions and my uncle, almost clairvoyant in his sympathy with me, sensed my feelings and said little in front of the others. We two strolled away to his office at last, while I told him the whole story. When I had finished he clasped my hand.

"I'm proud of you, Jack," he said. "No man could have had a harder time of it. But I know that you don't care to talk any more about it."

"I don't, uncle."

"Then let's stick to shop. You know, of course, that you're to lead a combat group back to the Martian base."

"So I understand."

An orderly appeared with a communication from the High Command. The general officers of the Terrestrial forces had heard of my feat and were offering their congratulations. Soon they proposed to entertain me. In the meantime secrecy must be observed, until the Martians power on the moon was blotted out forever.

At first there had been talk of repairing and garrisoning the enormous shell which I had partially destroyed, but this plan was swiftly discarded. Late in the afternoon of that same day, I once more took to space, this time in the cabin of a squadron commander's ship.

It was easy to lead the expedition to the scene of my late conquest. We swooped down like a flock of vultures, taking up positions on the flanks of the mighty hulk. Some few survivors in space-suits came forward eagerly to surrender as our party entered the air-locks.

These prisoners were questioned thoroughly. They readily told our officers that the mother-ship represented the one Martian base on the moon, and they also served as guides throughout the airless corridors.

A number of the smaller raiding ships were found to be in fair running order, and these were manned and loaded with all that could be salvaged. Then, with explosives and disintegrator rays, wrecking parties set to work on the structure. For hours they labored, and in the end the mighty mother-ship was utterly wrecked, no longer fit as a menace or a threat to Earth.

I took part in none of this. My only act, after guiding the expedition to the spot, was to find and carry out the body of Nalo, to

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take the remains back with me.

When we returned, and not until then, the news was broadcast throughout the earth that the Martian marauders had been obliterated. Loud was the noise of thankful celebration and I feel sure that every person loyal to the Terrestrial cause took part in it—all save myself.

For I was concerned with Nalo's funeral. His body was burned and the ashes scattered, according to Martian usage. His belt, his automatic pistol and half a dozen mementoes I put away in a locker. So long as they exist, they will recall memories of a gallant and too-faithful friend.

Goaded and stimulated, the manufacturers of fighting equipment speeded up their work, and preparation went on throughout the remainder of the year. The resources and labors of the entire earth were expended to build thousands of space-ships, to equip, maintain and train the millions of men needed to meet the Martians when the final battle came. Come it would, every Terrestrial knew. And then there would be as tremendous, as awful a conflict as mortal creatures ever saw.

It is not for me to discuss the policy of Martian commanders in sending four separate forces to attack Earth, instead of combining them into one. Some commentators have stated that the Martians made erroneous calculation for the joining of those forces in space. Others claim that they hoped to split and destroy separately the Terrestrial combat groups. And there have been rumors of misinterpreted orders and similar blunders.

However, those who really know—the officers who launched the Martian attack in the winter of 2676—have remained silent to a man. Until they speak, the curious must whistle for an explanation. I, for one, cannot give it.

In late November of the year 2676, scouts and radio brought news that a tremendous combat group had left the enemy planet, now approaching opposition, and was making for Earth at top speed.

The number of Martian craft, large and small, was estimated at 300,000. They were granted some eighty days in which to come within striking distance of Earth. So formidable a fighting organization had never before existed, save on paper, and in the story-books of the pre-Atomic Age.

But we Terrestrials, knowing that our ready forces numbered more than twice as many ships, were not panicky. We were more interested and serious at the news that came early in December, when a second Martian group, similar in size and makeup to the first, was reported en route to Earth.

SHORTLY before Christmas orders came directing all Terrestrial combat units to stand ready for clearing on the first of February. At that time we totaled 700,000 craft, ranging in size from mighty dreadnoughts of space to fleet scouts that held no more than five or six men. The crews that would serve and fight these ships mustered fully forty million. These forces represented the wealth of a world and the flower of its manhood.

A vast armada! But in the first week in January a third mighty mass of Martians was reported on the way. A desperate and almost even fight seemed assured, with the advantage on the side of the enemy. Everywhere one heard laughing and joking, forced out to hide the real concern which grew steadily as the jumping-off date approached.

During the last week of January, I received orders to report for active duty on the campaign. In the event of our landing on Mars, I was to help in establishing Intelligence Department headquarters there. My assignment was to the ship of Flight Commander Putnam, who headed a group of the swiftest combat ships of the entire service.

I quickly made friends with him and with the juniors officers of his ship—Captain Ferman, in charge of the ray-guns, and Captain Sughrue, chief of engineers and flight mechanics. Both were young men, about my own age, and inclined to view the coming struggle in the light of an exciting adventure.

They showed me how well equipped was their craft and its consorts for flight, speed and observation. Their only wish was for Martians on which to demonstrate their prowess.

We cleared from St. Louis, together with a thousand other ships. All over Earth rocket-ports saw mighty swarms of ships take to space. Once outside the limits of the atmosphere, we speeded up and drew into our appointed position, keeping contact with foreign units on either hand.

"Russians to the right," said the veteran Putnam, indicating the positions of our neighbors in one of the television screens. "Stout fellows and great space-wranglers, those boys. Our greatest speed engineers have been Russian—Manvelsky, Popoff, Schoeneckoff and the rest. The pioneers were Martians, of course, but they had little to teach these chaps."

"And who have we to the left?" asked Ferman.

"Chinese, I think," answered the commander, bending his grizzled head close to the screen. "They're good men to have along on this sort of business. Wide-awake, tricky, brave as the bravest."

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He turned dials to clarify the image. "That nearest flight belongs to Wu Ting Fang. I know him well. His men are perhaps as clever with ray-guns as you'll see."

"No more so than my Missourians, I'll bet," said Ferman quickly.

"I hope yours are as good, captain," replied his superior. "There will be need for all their skill."

Our ships moved at an easy pace that day, and the next day, and the next. Our commanders proposed to operate on the defensive at first, with the Martians engaging us at a great distance from their own bases. Both machinery and morale would suffer from the long journey, went the argument, and a stiff resistance would be doubly effective.

I am sure the battle would have gone according to our calculations had the opposing forces remained as we figured them when we jumped off. But, on the morning of the fourth day, an orderly came from the radio locker to hand Commander Putnam a slip of paper.

The officer's face became stern when he read it.

"Gentlemen," he said to the three of us as we looked at him in surprised concern, "this is bad. A final group of Martians has just cleared."

"How large?" I asked.

"As large as the others, it says here."

Sughrue silently made a rapid calculation.

"Lord! They have one million two hundred thousand ships in space this moment!" he groaned.

"They could trade us ship for ship and still have half a million left with which to sack the cities of Earth!" added Ferman in equally gloomy tones. "Even at that, they may have more to come."

"It's not as bad as it seems," said the commander. "Our ships are faster and better manned than theirs, and we're far better armed. These ray-guns will do a great deal toward evening the odds."

It was small comfort, but it served to recall the two junior officers to better spirits. The news was relayed to other ships of the flight, while we in the commander's ship wondered what change this latest threat might make necessary in our plans and our fate.

We had not long to wonder.

The radio orderly appeared soon after this with another slip.

Putnam eagerly scanned it, then held it out to us.

"We're not on the defensive, after all," he said. "We're going to meet and attack the first Martian combat group!"

CHAPTER V

Earth Smites

AGAIN the news was passed along and Sughrue scampered away to his engines. In a moment we shot forward at an increased clip. The television showed our neighbors on all quarters closing rapidly, and the whole force concentrating.

"What's our new policy?" asked Ferman.

"A simple and logical one," said Putnam. "Our position is that of a giant who could conquer me alone, or you, or Stillwell, or Sughrue, alone. If the four of us rushed him at once, however, we could finish him easily. His best plan, therefore, would be to meet and defeat us singly.

"We are a single force of seven-hundred-thousand ships. The Martians outnumber us, but they are divided into four groups, millions of miles apart. We're fast-moving and hard-hitting. If we can tackle them singly, we have a good chance of cleaning them all up, a group at a time, or at least crippling them so that they won't present a menace to Earth."

"In the meantime, what happens to us?" I inquired.

"In the meantime, my boy, you have one chance in I don't know how many of ever seeing St. Louis again."

Sughrue, back from the engines, called us to the television apparatus.

"The Martians!" he cried.

In the screen was the image of a cloud of glittering specks against a black sky, like a strange new star-cluster.

"Martians, sure enough," agreed the commander. "The sun shines on them, making them visible to us. That must be the first group." He quickly checked up some figures on a movable scale. "They can't be so much as six hours away."

Radio messages came, bearing commands to stand by and prepare for action. Our screen showed the Martians shifting to open formation. Other, larger specks of light moved into our field of vision.

"Those are ships of our own advance parties, far ahead," said Putnam. "Look—there's the flash of a ray gun. They're opening the game."

He turned to the radio orderly.

"What have you now? Well, thank God, here's our order to join in. Full speed ahead, Sughrue. We're going to get our feet wet!"

It seemed no more than moments until Ferman, with the guns forward, shouted that the Martians were within range. At almost

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the same time, the floor beneath me gave a sharp lurch.

"What's that?" I asked, staggering to keep my balance.

"That's Sughrue," replied Putnam, holding on by a rail. "He was snapping us out of the way of a roving bomb." He spoke into a microphone. "Well, Ferman?"

"The Martians are jumpy, too," came back Ferman's voice. "One big fellow is skipping away from us like a dog playing with the water from a garden hose.

"*Whup!*" he laughed exultantly. "We've put the finger on him!"

The television showed me half a dozen duels between members of our flight and Martians. Putnam, scanning the screen with practiced eye rushed a series of radio orders to various ship commanders.

They must have been very good orders indeed, for in a few moments our flight had accounted for twelve enemy ships and was driving away all others for some little distance around, while only two of our craft were lost.

"We've got 'em on the run!" Ferman's voice was crying.

"Because they weren't Class A fighters," said Putnam. "I'm glad it wasn't worse. Orderly! Radio my compliments to Captain Janecki commanding Number Seven. Call his attention to Number Six, hit by Martians. Tell him to go aboard and see if he can put her in the running order again. We'll need her."

In the meantime the battle was raging at a little distance in our front and on both flanks. Our superior numbers and armament counted heavily. Television glimpses showed Martians falling back on every hand, their ranks badly depleted.

"What now, sir?" asked Sughrue's voice, microphoned from the engine-room.

"Pursuit, orders say," answered Putnam. "Full speed ahead again."

Our flight rapidly overtook a group of retreating Martians. I went forward to Ferman's ray-guns, and through the target-finders saw one, then another enemy craft explode to nothingness.

"Better for them if they'd stop and fight," said the young captain. "Humph, that's just what they're going to do! Look at the boys in our flight. There are Numbers Nine, Twelve and Thirteen, all tying in. Now the others.

"Fifteen's hit. Too bad—not quick enough to dodge that roving bomb. Man, how the ray-guns are coming through!"

Again the Martians were melting all along the way. Yet their resistance was not in vain. In some places, we learned, they gave fully as good as they received before retreating. At last the order was sent along to proceed at a reduced pace, letting the fragments of the enemy group make their escape.

Our own flight of thirty vessels had lost but three, while nowhere in our immediate neighborhood had our companion flights lost heavily. In the meantime, orders from the High Command were received in which all Terrestrial units were praised for the speed and dispatch shown in adminstering defeat to the enemy.

"If the others are as easily beaten as that, it'll be a picnic," grinned Sughrue.

As if in satirical answer, the latest radiogram arrived.

It told that the second and third Martian groups had merged into a single mass of 600,000 ships, a body in itself nearly equal to our entire force. Meanwhile the fourth group was hurrying to join in.

WHAT followed is known to every schoolboy; is remembered at first hand by millions of veterans on two planets.

We were no longer in a position where a slight advantage in offensive weapons would make us victors. We had shattered one group, yes; but the three remaining, if combined into one, would still outnumber us hopelessly. Our salvation lay in quick maneuvering, and our High Command knew it.

The quickly laid plan, therefore, was to hurry across space and interpose the Terrestrial group between the two Martian gatherings. With things so ordered, we would have a fighting chance for success and survival.

The fourth Martian group had the start on us, but here our faster flight mechanism stood us in good stead. In the six-day dash that ensued, our formation took the shape of a comet with tail flaring backward. The head was made up of the light, speedy units, Putnam's among them. Larger and heavier vessels followed, with the big, slow transports at the very tip of the tail.

As it was, the race developed into a question of minutes. The first five or six Terrestrial flights dashed in between the two hostile bodies at last, winners by the shortest of noses. The Martians reeled and hesitated before the blazing ray-guns, then retaliated with such deadly effect that practically all the Terrestrial van was wiped out.

The heroic sacrifice of those ships, however, served its purpose, for, almost at the moment of joining their fellows, the foremost members of the smaller Martian group dropped back for a moment; and then it was too late. More Terrestrials sped into the gap, quickly deploying to keep the Martians separated.

We were hotly beset on both sides. Putnam's twenty-seven ships, going into action

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close behind the luckless first flights, were diminished by nine within five minutes. The others, fighting pluckily against overwhelming numbers of Martians, would soon have gone the same way but for the providential arrival of Terrestrial dreadnoughts. These, with long-range disintegrators effective at thousands of miles, drove back our immediate antagonists.

Other flights around us also lost heavily, but in the meantime the gap was kept open, while more and more of our fellows poured in to take up position in it.

An hour passed before the fighting was on anything approaching equal terms, and for thirty minutes the conflict raged unceasingly, while the Terrestrial position grew constantly stronger and stronger. We were now like a curtain hanging between two swarms of wasps of unequal size—angry wasps, endowed with motion and intelligence, that with murderous valor strove again and again to tear apart the curtain's fibers and join into one enormous and invincible swarm.

In Commander Putnam's ship, floating gracefully in a locality where the battle had lulled, the veteran was pouring over diagrams and tables of figures in an effort to visualize the engagement.

"Our formation is coin-shaped," he explained. "It is thousands of miles across and thousands of miles thick. This whole battle is being waged over a section of space large enough to hold Earth, Mars, and the moons of both planets."

"How are we holding up?" asked Ferman, biting hungrily at an apple which had been his sole food in twenty-four hours.

"Splendidly, it seems. I haven't had much time until now to compare messages from other flights, but, so far as I can make out, we're doing our part, and more."

At this juncture came orders for our unit to speed to the edge of the position, where all the fast ships were being gathered to prevent any effort of one Martian group to creep around our flank and join the other.

It was comparatively quiet out on the flank of the battle, and we had time to observe the conflict through our television—a conflict that looked like a myriad points of light against the black sky, a Milky Way that seethed and churned as the divided Martian forces strove desperately but in vain to hammer their way through us and to merge into one army.

At last the moment arrived when the Terrestrial force had achieved its desired position and formation. Then, like a flash, orders were radioed to ships great and small. The whole coin-shaped mass swung sharply away from the larger enemy host and rushed upon the smaller.

The distances, great as they seemed, were relatively as nothing to the mighty space-eating mechanisms, now roaring at fullest pitch. A concerted operation of ray-guns withered away the first ranks of Martians like flies in the flame of blow-torches. Those further back, confused by the sudden assault, were slow at resisting.

Meanwhile our formation suddenly slowed down in the center and speeded up along the edge, transforming its shape to that of a dish to hold the Martians in its center. Our ceaseless fire from the front was augmented by attacks on every flank of the enemy.

In vain did the Martians fight back. It was but a matter of minutes before the entire group, which had left its native planet with 300,000 craft, was crumpled up, demoralized and shot to pieces.

Another order flashed out and we fell away, none too soon. The larger Martian organization, surprised for a short space, had rushed upon us as we turned our backs and we had to whip around to defend ourselves. At last we were on somewhat even terms.

At the moment, according to government records, each side mustered about four hundred thousand ships. All others, totalling nearly a million, had been destroyed or disabled in the fight.

And so might we have fought until the work of destruction was complete and the last craft dropped to pieces in space. Already Putnam's ship bore down on a Martian adversary. Ferman was setting his ray-guns upon it, and Sughrue was holding his engines at full tone to dodge away from bombs. But the newest order was rushed from the radio. Putnam snatched it.

"Cease hostilities at once," he read excitedly. "An Armistice has been signed."

AND so, with no decisive victory on either side, the two forces fell apart and hung silent in space. A little later came directions for both sides to return to bases. A truce had been made, said the dispatches, and Martian envoys were hurrying to Earth to make terms and pledge better understanding.

Terrestrial delegates were also sent to Mars. I arrived at St. Louis shortly before their ship left, and my uncle secured me a place among the young officers who went as attachés. Early in March we cleared for a journey that, even when the craft exerted the utmost power at its command seemed to me at least, to be but a crawl.

We docked in Ekadome, the City of Martian Rulers, to be courteously received and entertained. That awful battle in space had demonstrated the utter and dreadful sense-

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lessness of armed conflict. There was a grave, courteous discussion and agreement. Afterward, a dinner was announced, with the Terrestrials as guests.

But I slipped away as evening came down, and hailed an electro-car. The driver eyed my Terrestrial uniform glumly, but accepted me as a fare. We slid once more through familiar subterranean ways, to where a lift would bring me to the surface in another part of the city. With beating heart I mounted and stood again before the gateway from which I had once departed almost in tears.

My heart was like ice within me and my eyes swam as I slowly pushed that gate open and walked in. The huge, brilliant flowers, the seat beneath the strange clump, were as they had been, but no one was there. Walking to the seat, I dropped into it.

"Who are you, Terrestrial?" said a startling soft voice near at hand. I rose quickly and looked to see the dark eyes of Yann as they widened.

"Yann! Oh, Yann!" I said, and clenched my hands in desperate futility of speech or action.

"Have you truly come, Chac?" she said in muffled tones. "Sit down. How tired you look! And your hair, it is streaked with gray."

I was sitting again, and once more I felt her hands on my head.

"Don't touch me—don't touch me!" I cried wildly. "Yann, I would not have come, had it not been that I could not stay away!"

"Chac, you are ill; see how your hands tremble."

"My hands! Yann, do you know that they are red with the blood of Nalo, your brother?"

"I know it, Chac, I know it."

"You know it!" I was aghast. "How could you know it?"

"When one world rang with your praise, would not the other hear? We all knew what you did, alone against thousands. My father cursed you bitterly, swore vengeance. Better had he kept silent. He was killed in that final battle."

Had she wept or screamed or reviled, I might have found more to say. I might have offered explanations, defenses. But, since her voice was soft and calm, I could do nothing but rise in silence and walk toward the gate.

"Chac!" Yann was running after me. "Chac, where are you going?"

"To Earth. I must never look at you again."

"But, my dear!" she caught my hands. "I have lost so much in this war. Must I lose you as well?"

She gripped my shoulders.

"I bade you go and do your part in honor or bravery—don't you remember? I prayed, of course, that you and Nalo might never meet. But things turned out otherwise—and what else could you have done?"

My heart beat wildly as, at last, I dared look into her eyes.

"The worlds now see war in all its scurvy reality," she went on. "Well might they have let the battle continue so long as one drop of blood flowed in a fighting man, or so long as there remained a ship or a gun or a bomb. But they have stopped, have sworn to forget the strife and to build on what is left. Surely, Chac, we can follow so good an example?"

Now I knew her for a thing more lovely, more wise and more desirable than even my dreams of her had been. I trembled as I put my arms around her and drew her pliant form close.

"I haven't much time here, Yann," I murmured. "Tomorrow, or the next day, our ship must start back, before the planets draw too far apart. Will you go with me?"

"Gladly, dearest love."

"You'll love it on Earth, Yann. The fields and meadows are green there, instead of blue and red and orange. The days are not too hot, nor the nights too cold. And there are mighty seas of water, stretching beyond your sight.

"I can't tell you a tenth of Earth's beauties. And there are friends there too, sweetheart, kind, courteous people such as you will love."

"I know, I know. How sad that the war was needed to assure one world of the humanity of the other. But let us sorrow not more, lover—come to me!"

Her kiss was a final comfort and blessing.

●

NEXT ISSUE'S HALL OF FAME NOVELET

THE DISC-MEN OF JUPITER

A Sequel to "When Planets Clashed"

By MANLY WADE WELLMAN

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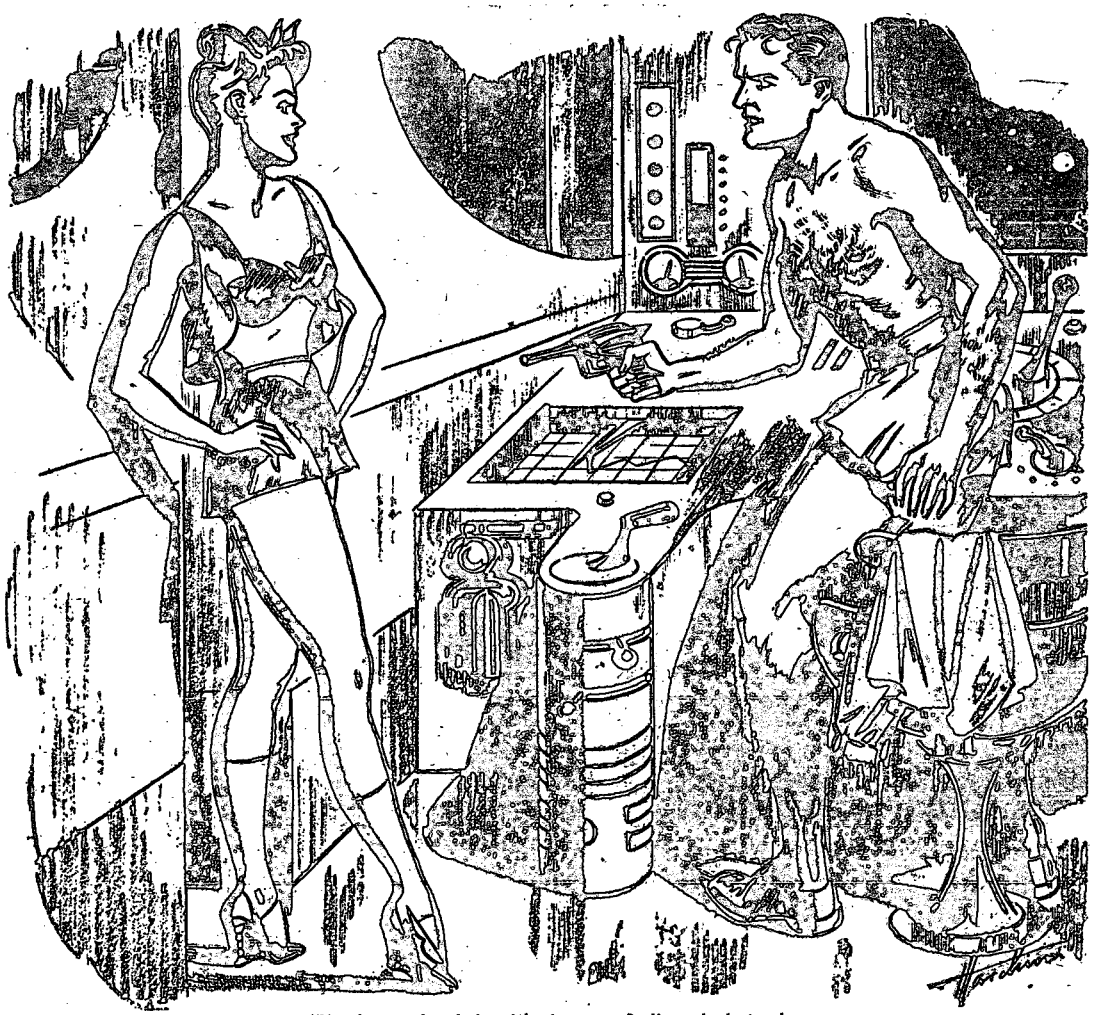

"You know what I do with stowaways? Jim asked sternly

STELLAR SNOWBALL

By JOHN BARRETT

A precious cargo of magnetic elenium, a girl stowaway, and a pirate sure keep things humming on the freighter Cyrex!

WHEN the last signal light of Tira had vanished astern, Jim Grant switched the rocket controls to automatic, took off his shirt, and leisurely scratched his back.

After all, there were some advantages to owning your own freighter, even if it was risky flying solo on an inter-stellar run. At least you could relax. You didn't have to worry about a snoopy company inspector fining you for piloting a ship in your shorts.

Best of all you didn't have one of those irritating "No Smoking" signs dangling in front of your face all the time. With a contented sigh he lifted a pipe from the drawer of the chart table. He was just reaching for the tobacco humidor when the cabin resounded to three sharp knocks.

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The pipe clattered to the deck. He jerked himself out of the chair, grabbed a ray pistol from the drawer and faced the slowly opening door to the freight compartment. A pretty blond head came into view.

"May I come in—or are you dressing?"

Before his stunned mind could react, the door swung wide, revealing a trim, scantily clad feminine figure.

Jim glanced down at his fuzzy chest and hairy legs. He felt the heat flow into his face, and, with the gun still in his hand, he made a swipe for the shirt.

"Who the devil are you?" he demanded.

And then he got the gun tangled up in the shirt sleeve and she started laughing.

"Just an ordinary stowaway," she said, nonchalantly making herself comfortable in a chair on the opposite side of the cabin.

Jim wrenched at the gun and tore the sleeve completely out of the shirt. She can't make a fool out of me, he told himself.

"You know what I do with stowaways?" he asked sternly.

She smiled at him.

"You look funny in a one-sleeved shirt."

"Listen, lady, don't try to fast talk me. When we land, I'm handing you right over to Earth's custom officials. They'll put you on the first return ship. Furthermore, you'll pay me a one-way fare."

"When you say 'lady,' it sounds like an insult," she observed dryly. "Anyway, we're going to be cooped up here for two days, so you might as well call me Claire."

Jim clamped shut his jaws on the words that boiled up inside him. If only she were a man. Twice before this had almost happened. Tiranian hoofers, tired of entertaining the rough, loud-voiced miners, had tried to stow away on the *Cyrex*. Both times he had discovered them before the ship left the planet on its interstellar run to Earth.

Jim glared at her—the full lips, half smiling even now as she stared through the port, and the dark eyes. Then his anger simmered down. This girl was dressed like a hoofer, but she didn't look like one. The cynical, wornout look around the eyes was missing.

She glanced at him quickly.

"Hadn't you better stop staring at me and tend to your navigation? You're about ten points off course."

Jim swung around to the compass. Suddenly he stiffened and turned back.

"How do you know what the course should be?"

For an instant she lost her self-assurance.

"I—I— Well, that's simple navigation. Anybody who's made the trip once would know the course."

"I see." Jim sat down in the pilot's chair and regarded her. "Well, it so happens that when I'm carrying a magnetic cargo like Elenium, I don't take the regular course." He watched the girl's face carefully. "You probably don't know it, but there's a gaseous cloud between the Solar System and Omega Orionis—sort of like a gigantic, slow-moving pinwheel. The astronomers think that in several million years it might contract into a star."

"My! How thrilling! I always wanted to be an astronomer."

Her eyes widened as she said it, but he had the feeling she was faking. He went on slowly, as if he were giving a small girl a lecture, keeping his eyes on her face.

"The big passenger and freight ships go through the edge of the pinwheel, but the *Cyrex* is small and I don't have a demagnetizer, so I go through the center. With these modern time-warp drives a small magnetic disturbance is cumulative, and the center is like the center of a cyclonic windstorm—less chance for disturbing magnetic effects on the cargo."

She nodded respectfully. "I see."

Jim stood up.

"That's the wrong answer. You should look blank and tell me I have nice muscles or something. Who are you, anyway?"

SHE looked him straight in the eye and began talking like a mechanical recorder.

"I am Claire Jamison. I work in the floor show at Tiranian Club No. 568, and I'm sick and tired of looking at miners who won't shave and want to dance with me in overalls."

She tossed her blond curls pertly and walked to the side port.

Jim couldn't help but glance at the long shapely legs. He smiled.

"I suppose you got that coat of tan from a spotlight."

She did not answer; merely lifted her chin a little higher and stared into the star-speckled void.

Jim shrugged. What the devil, he thought. Why should I care who she is. She's a stowaway. The immediate problem was how could they live together for forty-eight hours

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without this disconcerting intimacy. He looked at the figure by the port and was suddenly conscious of the inviting curves of her body. He swore to himself. The least she could have done was to wear a sack coat or something. Well, there would be no involvements. He would see to that. He picked the pipe off the deck and dusted it off. Savagely he crammed in the tobacco and lit up.

She turned around, wrinkling her nose. "I don't like pipes. They smell."

"That's fine," he snorted. "That's perfect. I'm going to move back into the freight compartment, and smoke my pipe steady for the next two days."

He gathered up his pants and shirt and tucked the humidor under his arm.

"Wait," she said. "How close does this course take us to Vanis?"

"Vanis? What do you know about Vanis?"

"Do you always glare like an ogre when people ask questions?"

"Most of the time." He puffed on the pipe. "Vanis is about a forty-five minute flight from here on the warped time scale. Why?"

"Then a ship taking off from Vanis now would intersect our course in about half an hour or so."

"That's right, except that ships don't take off from Vanis. It's a dead star. On the maps it's just an unknown."

But the girl went on as if she hadn't heard him.

"And if it did take off, it should be on the visiplate now."

Jim's pipe sagged. It occurred to him that there might be some men in white coats looking for this girl. Then he saw her move quickly to the visiplate, and with the skill of an expert, focus the complicated mechanism on Vanis.

He stepped up beside her. A cold shiver ran up his spine. On the flickering screen he saw the clear image of a green, rocket ship. The automatic coordinates showed that it had already covered a quarter the distance between them and Vanis and would intercept their course.

He tossed his belongings on the table.

"All right. Out with it," he said roughly. "What's behind all this?"

The girl faced him and he saw the nonchalance was completely gone. Her face was white.

"That's the *Mantella*—Del Kaeton's ship," she said weakly.

"I know it is. Furthermore, I know that Del Kaeton has a reputation among space miners that smells from here to Betelgeuse. How did you get tangled up with him?"

"It's all rather involved."

She tried to smile, but her lips were trembling.

"You better sit down." He pulled over a chair. "Now, begin at the beginning, and cut out all this embroidery about Tiranian Club No. 568."

She glanced down at her abbreviated costume and flushed.

"You don't have to act superior. You're mixed up in this yourself."

"I'm not mixed up in anything," Jim contradicted. "I carry cargoes for a fair price. I don't monkey with contraband and I steer clear of guys like Del Kaeton."

"But you don't usually carry Elenium."

"I'm carrying Elenium merely because the regular company freighter broke down at the last minute, and the cargo was urgently needed back on Earth."

"But the freighter didn't break down," the girl said. "Del Kaeton sabotaged it."

Jim frowned.

"How do you know?"

"I have proof—here." She tapped the little pocket of her brief skirt. "Del Kaeton's plotting to flood the whole Tiranian mine system. My father's a mine superintendent. He found out about it."

Jim blinked.

"Isn't that a pretty big order—flooding the mines?"

"Not so big. A few men near the water valves at the right time and some atomic explosive. Del Kaeton won't worry about the lives of a million miners if he stands to make some money."

"It doesn't sound very lucrative. What does he do then? Get a contract to pump out the water?"

"Oh no. He found a poor grade of Elenium ore on Vanis and he's set up a jerry-built mine. It can't compete against the Elenium Company, but with the Tiranian mines flooded, he'll have a monopoly."

JIM whistled. It sounded like Del Kaeton all right. He tried to figure out how much of a crimp a Del Kaeton monopoly on Elenium would put in Earth's manufacturing. The light, highly magnetic metal was used in practically every alloy of Earth's metals.

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A fraction of an ounce in a ton of steel, with proper heat treatment, produced an alloy with a tensile strength close to two million pounds per square inch.

But extracting and refining costs were high, even today. Elenium Mines was operating almost as a public trust. With Del Kaeton on the producing end, prices would really soar. Jim tapped his pipe against his teeth.

"If this is true, it's very bad business."

"If it's true?" The girl's dark eyes flashed. "They've got my father. That's how true it is. Del Kaeton's men took him to a hideout in the mountains south of the mines. He'd be dead by now if Del Kaeton didn't know I had this." She tapped her pocket.

"Then why didn't you tell me all this before, instead of prancing around like an imitation strip tease artist?"

She smiled cynically.

"You haven't got one of those frank, beaming countenances that invites a young lady's trust and confidence, Mr. Grant."

Jim rubbed his chin, and was suddenly acutely conscious of a day's stubble prickling his fingers. He pulled away his hand.

"How did Del Kaeton know you were on my ship?"

"He doesn't. He just knows I got away. Yours is the only ship that's left Tira in a week. I guess he put two and two together."

Jim walked to the visiplate. The green ship was approaching rapidly. Del Kaeton evidently had some special kind of supercharger. In a real chase the *Cyrex* wouldn't have a chance. He turned to the girl.

"I suppose the *Mantella* carries guns?"

"My father says it's practically a battle rocket."

She was rubbing her hands nervously.

He picked up the small ray pistol and hefted it.

The girl stood up, wide-eyed.

"Haven't you even got a cannon? I thought all space ships carried big guns of some sort."

"You read too many stories," Jim grunted. "The way I figure it, people who carry a lot of armament are always getting themselves into a jam where they have to use it."

"But he'll kill us." She was leaning forward, gripping the edge of the table. "Can't you see? We're the only people that can expose him. He'll wipe us out without a second thought."

Jim gazed at the image in the visiplate and chewed his lip.

"Oh, for heaven's sake, do something! Change your course anyway, and go through the cloud. This way we're actually going to meet him."

He stepped over to the stellar chart and studied it closely. Finally he turned around.

"I don't like to do it. This Elenium is magnetic. Without a demagnetizing machine in the hull, it disturbs the positive charge of the cloud. The negative poles of the Elenium bars sometimes cause it to condense in front of the ship. At our speed even a thin vapor is like a brick wall."

The girl shook her curls impatiently.

"But the freight crews always load Elenium bars with opposite poles together to neutralize the magnetic effect."

"That's a nice theory," Jim said, "but some bars are more strongly magnetized than others, so it never works out quite right."

He leaned across the control panel and pushed a lever. The cabin tilted suddenly as the *Cyrex* made a sharp turn to port.

The girl grabbed at the stanchion in the center of the cabin to keep herself from falling.

"Are you going through it?"

"I'm going to come in close and see what effect the Elenium has."

IT came sooner than he expected. The ship bucked up like a rearing charger. At the same time the needle on the acceleration meter dropped. The cabin became uncomfortably warm.

Jim pulled back the lever. The *Cyrex* swung to starboard. He shook his head.

"No use. We're traveling at such a terrific speed that even the friction of a thin gas would burn us up."

"You could slow down. There wouldn't be so much friction then. We might even lose Del Kaeton in the cloud."

Jim fiercely banged the ashes out of his pipe.

"Not a chance. If I know Del Kaeton, he has a detection apparatus that could trace us through the Black Nebulae of Orion. How do you suppose he spotted us in the first place?"

He sat down in the pilot's chair and rubbed his fingers across his forehead.

"Are you just going to sit there, and let it happen?" she demanded angrily. "Good heavens, you've been a rocket pilot for years. Isn't there something? Some trick—some—"

He motioned her to be quiet.

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"Let me think, will you. Just let me think."

Absently he reached for the humidor and began filling his pipe.

"You! You!" She was almost screaming at him. "Can't you even think without a pipe in your mouth? We've only got about twenty minutes."

He looked up at her. Her lips were thin and white, and there was a pained look in her eyes as if she were going to break into tears. He put down the pipe. For the next few minutes there was only the sound of thundering rockets. Then Jim stood up. She was staring at him, round-eyed, questioning.

"Don't get up any hopes," he said gruffly. "I'm going to try something, that's all." He stepped to the control board quickly and beckoned her to his side. "Keep an eye on our course and check Del Kaeton's in the visiplate. I'm going back into the freight compartment. If he get's within cannon range before I'm finished, let me know."

Ten minutes later Jim staggered back into the navigator's cabin. His arms and chest were wet with perspiration. He nudged her away from the panel.

"Okay, I'll take over."

He sat down in the pilot's chair, staring at the dials and taking big, deep breaths.

"What did you do?" she asked.

"I don't know. Maybe nothing."

He pulled down the acceleration lever till it was jammed tight against the safety guard. The sudden spurt threw the girl against the chart table.

"Are you crazy?" she screamed. "We're heading straight for him. He's almost in range."

Jim tied the acceleration lever against the guard with a wire. "This ought to get us opposite the center hole of that pinwheel ahead of Del Kaeton. That's all I'm interested in just now."

There was a loud *whoosh* and the cabin lighted up as a rocket shell cut across their bow.

"He's shooting at us," the girl groaned.

Jim kept his eye on the acceleration meter. The ship was trembling under the excessive surge of the motors. Again the bright flash flooded the cabin with light. The *Cyrex* lifted and plunged. Every needle on the dials wavered. Jim swallowed. That one must have scraped metal off the underside of the hull.

He reached for the rudder lever.

"Grab a stanchion," he called out. "Here we go." The ship made a sickening swerve. Chairs, books, everything loose in the cabin shot across the deck and piled up against the starboard bulkhead as the *Cyrex* headed into the center of the gaseous vortex like a thread into the eye of a needle.

The girl fought her way back to the visiplate.

"Where's the *Mantella?*" Jim asked.

"Directly astern." She sobbed. "He's gaining." Then her head came up and she glanced wildly around the cabin. She grabbed his shoulder. "What's happening?" The ship was glowing with a pale, greenish light.

Jim pointed forward. The whole sky ahead was dancing with a million points of bright light. They parted and swirled away as the rocket approached as if some invisible plow far ahead were tearing open a path.

"Can you still see Del Kaeton's ship?" he asked.

The girl looked down at the visiplate.

"He's disappearing," she cried out. "There's a cloud forming behind us."

"Good."

Jim got up from the controls and stepped up to the visiplate. The outlines of the *Mantella* were fading fast in a thick white cloud that grew denser every second. Then, as he watched, the cloud seemed to contract and solidify. Its whiteness became more brilliant. Now it was emitting streams of light. Jim sucked in his breath. The girl shot him a worried glance.

"I didn't expect such a violent reaction," he said. He looked ahead. The brilliant dancing spots were still parting in front of the *Cyrex* and whirling past the ports.

"What is it?"

Jim licked his lips nervously.

"I guess I speeded up the formation of a star—about a hundred million years. I turned the Elenium bars so that all the positive poles pointed forward. The particles of this gas cloud have a slightly positive charge. That's what kept them apart. The forward part of the *Cyrex* is positive now so they fly away from it."

HE LOOKED out of the ports at the flickering pinpoints of light and across his mind there flashed a vision of the gigantic disturbance he had created. The *Cyrex* was a bar magnet, and though Eleni-

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um was the most strongly magnetic metal ever discovered, its effect was multiplied thousands upon thousands of times by the time-warp drive of the ship. He slowly became aware that the girl was talking to him.

"—make sense. If it's negative the particles should cling to the after end."

"They can't," Jim said. "The rocket blasts blow them off. The blast must shatter their positive charge, somehow. They cohere behind us in a nucleus. The mass has gravitational force and attracts other particles, giving it even more gravitational force—sort of a snowball effect."

The girl stared into the visiplate.

"Then what happened to Del Kaeton?"

He rubbed the back of his hand across his cold forehead.

"I don't think you'll have to worry any more about Del Kaeton. He's now part of the center of a new star, stewing in his own juice at a temperature of several thousand degrees centigrade."

Jim saw the girl shudder. He began picking up the books scattered over the deck. When the cabin was neat once more he looked at her. She was still standing by the control board, fussing now with a shoulder strap.

She saw him looking and reddened.

"My strap must have torn when you made that fast turn. It's really a very flimsy costume. I guess I'll have to borrow some of your clothes."

He grinned.

"It looks pretty good to me," he said. He tossed her his shirt. "By the way, Miss—ah—Jamison, are you really a dancer?"

"Not professionally." She began emptying the stuff out of his shirt pockets.

He sat down in a chair.

"The pilots' club has some nice dances. Tomorrow night, in fact. If you—" He began to stammer.

"I'd love to," she agreed quickly.

He settled himself in the chair, avoiding her eyes. Unconsciously he began fumbling with his pipe, filling it with tobacco. Then he noticed what his hands were doing. He hesitated and looked up at her.

"Do you mind if I smoke?"

She smiled.

"I'll get you a match," she volunteered.

THE SOMA RACKS

(Concluded from page 69)

honey girl? Your little heart's beating so hard. Did something frighten my poor baby?"

He didn't, she saw, remember anything.

"It's the storm!" she answered rather wildly. "It's the storm. Oh, Jick, I've been so awfully scared!"

"Why, you poor little thing! Somehow, I wasn't paying much attention to it. I know, we'll turn the flurors on, and then you come and sit on my lap on the chaise and I'll see if I can't comfort you. No wonder you're scared, staying here in a storm in the dark."

HE PRESSED the stud in the wall. The soft, reassuring golden glow of the flurors came on.

"That's better, isn't it?" Jick said. He was looking at her anxiously. "Now—"

He went over to the chaise and pulled her down on his knees and started kissing her.

It was wonderful. He was back again, her own sweet, loving Jick, as if none of the horrid events of the last few days had happened at all. Oona closed her eyes and sighed deeply, from mingled relief and delight. It was wonderful. She clung to her husband in an ecstasy of bliss.

There followed a succession of delicious moments.

"Say, sweetheart," Jick said at last.

"Mmmm?"

"I was thinking. You say I never do anything around the house. Well, how would it be if I made another of those soma bottle racks like I made last week? I could take some of that plastic-coated wire and sort of shape it into festoons and filagrees on the front. Make it decorative. How would that be, Oona? Another one of those soma bottle racks would be a mighty handy thing to have around the house."

THE MANLESS WORLDS, an astonishing novelet by Murray Leinster, featured in the February issue of our companion magazine, THRILLING WONDER STORIES!

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(Continued from page 10)

someone appreciates us even if we have virtually to starve them to win it. At any rate, thanks for dropping us a line.

A CHASTENED CHAD
by Chad Oliver

Sarge, old top: Clawing my desperate way up from the depths of the dero-infested mole tunnels . . . . *oops!* Egad, no—not the waste-basket. . . .

Anyhoo, chalk up one rave for Kuttner's ABSALOM. The lingering urge of the Letter Hack prompts me to say that, at least.

I certainly picked one swell time to extol the virtues of Ole Tungsten, eh wot? Ah well, he was a GOOD louse. Really.—*1311-25th Street, Galveston, Texas.*

P.S.—The Bergey is *still* a blotch!

Let's see you do any better, Chad. Let's see you. Otherwise, all is forgiven. Write as you please—we'll cut as we please, see?

HOUSEHUNTING WITH CUNNINGHAM
by Gwen Cunningham

Dearest Sarge: Have you ever gone visiting, expecting to have a high old time? And then, when you got to well-lighted house and went through the beautiful rooms, you were awed to discover that there was no other living person in the house?

If you have ever done this, you can readily ascertain that to give a party one must have a house and entertainment and, above all, a host. Right?

Now your magazine is the house. But with the Old Sarge crassly murdering Snaggle-tooth and Wart-ears and tapering off on his Xeno, I feel that the magazine is just a nice house—without a host. This must not be—we love you as you are!—*4566 Ferntop Drive, Los Angeles 32, California.*

Okay, love us as we are now then. And if you find any more empty houses these days, we know of a long list of people looking for same.

NO MORE DOUBLETALK
by Guerry Campbell Brown

Dear Sarge: So the Sarge is now a fairly reasonable approximation of something halfway close to a mildly intelligent human. What do you know? No more doubletalk, thank goodness. I will miss some of your choice remarks, no doubt, but that is not too great a loss. And no more super-hack letters, either. What will you do with them now that there is no longer a paper shortage?

A little poem is brought to mind—

The Sarge stood on the spaceship deck,
Burning hack letters by the peck.

You want some controversy on various STF matters? Well, here's something to work on. How about making Captain Future a little more human and reasonable?

How does one set about obtaining fanzines. Can any kind soul who wants to chip in get one? I have never seen a fanzine, so pardon my ignorance.—*P. O. Box 1467, Delray Beach, Florida.*

So, you want to make Curt Newton reasonable, Guerry. Reasonable and human at once, eh? Well, this brings to mind another little poem, *sic*—

You'd have Cap Future obey the laws,
Like lesser, ordinary mortals.
Get black eyes bumping into doors
At inconveniently opened portals.
Have blemishes and drink iced tea
Oh, well, perhaps such things can be.
But when, the Sarge must pause to chortle,
You want him reasonable and mortal
You ask without a by your leave
For more than even Science Fiction
can ever hope to achieve.

As for getting hold of some fanzines—why not write some of the editors as listed in the Review and find out? Okay?

HOT POTATO FROM IDAHO
by Delbert Grant

Dear Sarge: I've just been looking over the Fall Issue of SS. Though I can't understand why it is called the Fall Issue since SS is published five times a year. The first thing which met my eye was that little item from the "STF fan"— you know, about TWS catering to the "specially invited hack-writer." I think that this is true of SS also. And, pardon my saying so, something should be done about it. You might as well make a rule to the effect that no person will be allowed to have his or her letter printed in the Reader's Columns of TWS and SS in any two consecutive issues.

In the Fanzine Review, I noticed the omission of two swell STF publications—namely, THE KAY-MAN TRADER by K. M. Carlson of Morehead, Minnesota, and FANTASY ADVERTISER, put out by Guy Willmorth of Los Angeles. Both of these are top-notch publications and in my opinion should be right up on the A Group—*P.O. Box 14, Lewiston, Idaho.*

Okay, Delbert, let's take things in order. This five-a-year issue business has bothered a lot of other fans too, so here is the answer. You may have heard that last year was one of production troubles in many lines, not excepting magazine publications. Shortages, bottlenecks and whatnot pretty well jammed up the works. That's why there were only five issues last year. Otherwise, we remain bi-monthly.

The situation you object to in the letter columns was caused by the very simple fact that certain fans write better letters than others—consequently they break into print oftener. And it is to remedy this situation and to give more letter writers a chance that we are running more and shorter same. Okay?

You will find FANTASY ADVERTISER reviewed in this issue, as it was in the last, but since we have not received copies of the KAY-MAN TRADER, we can hardly comment on it, can we?

WHAT'S A "BEM"?
by Charles H. W. Talbot

Dear Sarge: Your mag is all right but not the best. You do have the best letter section. Is it the fans or the acid comments and biting sonnets of the Sarge? Why do people print Kennedy's letters?

Pardon our ignorance but what is the meaning of "BEM"? Does "BEM" stand for "Beastly Extra-terrestrial Monster", or something else?

Can't you get some stories not of the thud-and-blunder type? Can'tcha cut out the romantic angle, at least out of *some* stories? *Please* help give pore fandom a break and give us a better magazine. Why let TWS

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get all the good stories? Keep some for STARTLING or get some more.—*229 Chestnut Street, Englewood, New Jersey.*

You sound like a bit of a BEM yourself, Chas. For your private files, the initials symbolize BUG-EYED MONSTER, beloved of cover artist Bergey. And if that indicates a complex, make the most of it.

Otherwise, TWS does *not* get better stories. You only think they're better. We try to give both magazines strictly impartial treatment. So there. . . .!

GOING, GOING, GONG!
by S. Vernon McDaniel

Ye honored and most venerable Sergeant Saturn: How dare you even SUGGEST going serious on we poor fans? Fiddlesticks! Again and again I say—Keep on "kicking" the same old Neptunian gong around, bad puns, worse poetry and all.

The only thing you should change about SS is the cover. So, to enforce my vote, I have writ a pome. To wit:

A BEM is a monster
With long funny ears,
And bug eyes that grow longer
Through the years.
You'll find one on the cover
Of every science mag,
—Along with a handsome fellow,
And some old unclothed hag!
The artists have a habit
Of continued repetition
If they don't stop it soon
I'll have to draw up a petition!
Ye Sarge ought to know
Which way the waters flow;
But NO!
From June through to May,
He lets them have their way,
Drawing mugs, molls, and BEM's at bay!
So listen to what I say!
Stop it today!
AND THAT AIN'T HAY!

—*816 Soledad Avenue, Santa Barbara, California.*

Who said we were going serious? Eradication of some of the triter inanities that long held sway around here does not mean the Sarge is now a semi-diluted Walter Lippmann. But that hunk of verse you produced and flung in our (and our readers') editorial kissers is enough to make anybody pretty grim! Thanks, anyway—it was no end amusing.

THE KENNEDY KORNER
by Joe Kennedy

Dear Saturn: No more xeno! No Wart-ears, no Snaggletooth, no Frog-eyes, no grulzaks, not even the Blue Bem! Faith and begorra, can this be the *Ether Vibrates* of yore?

Warning: this letter will contain no live-wire controversial stuff, no intellectual discussion, no red hot teapot tempests. Nope, nothing but a few slightly blank thoughts which chanced to strike yours truly in the midst of a perusal of the Fall STARTLING.

In the first place, I'm looking forward with interest and a certain amount of apprehension to future installments of the letter section. The elimination of some of the tripe that cluttered up the column (heh—look who's talking!) is, beyond doubt, all well and good for *The Ether Vibrates'* wobbling liver and fallen arches.

I kinda hope, though, that all splashes of broad

[*Turn page*]

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humor won't be on the *verboten* list. Once in a great while it's fun, and adds a sprinkle of zest to the dreary run of things.

Howe'er, prepare for a stream of missives from Cap. Future addicts, for, gorblimey, unless our weary eyes deceive us, raygun-toting Curt Newton and his intrepid comrades are back with us once again. Wellman's "Solar Invasion" should rightfully have been subtitled "Get Out the Dimension Scanner, Boys—Somebody Swiped the Moon."

As for the rest of the contents, the general impression seems to be a much happier one. There's "After Armageddon", "Afraid", "Absalom" (gads, but you're running to grade-A titles this month). The Francis Flagg story was an example of the Hall of Fame story well worth reprinting. No classic, admittedly, but none the less a blamed good yard. Substitute the atom bomb for the mysterious poison gas, and we'd have a pretty reasonable (and terrifying) portrait of what a war could be like in the very near future.

I always get a kick out of the fanzine review section, in more ways than one sometimes, and this trip was no exception. This feature is unique in the field. The reviews of the oldtime *Science Fiction Fan* proved interesting. Speaking of Merritt's "Rhythm of the Spheres", why don't you republish it in *Hall of Fame*? (Yes, I can dream—!)

Well, even if Terra vanishes in a puff of atomic smoke long about '50, as some of the prophetic-minded lads would have us believe, we'll still have our stf to keep us warm until that fateful day. So keep the STARTLINGS coming—with or without the Xeno!

That about does it for now.—*84 Baker Avenue, Dover, New Jersey.*

That cluster of A-titles in the fall START-LING was, believe it or not, coincidence pure and simple, Joe. You should be able to figure out the chances of it happening again.

And we'll keep the SS's coming as long as enough of you want to purchase them, with all the broad humor the Sarge can muster.

BLUE SKIES?
by Alvin R. Brown

Dear Sarge: I take exception to your remark that gradings and criticisms are more or less out. Or are you going to ignore the fans and go on your merry way passing out the well known hack at us?

The Fall issue was a rather poor specimen all the way around. Ye olde Capt. Future really outdid himself this time. Not only was the writing stilted and slightly strained, but CF is falling into a pitfall most series do. The plots are becoming unwieldy. How about letting this series rest for awhile so as to lose its staleness?

AFTER ARMAGEDDON wasn't bad but I doubt if anyone in his right mind would nominate it for any Hall of Fame.

AFRAID and ABSALOM *were* fairly good. At least they were readable, which is a rare occurrence for a great many of your shorts. How about giving Kuttner a crack at the lead novel? He can come up with a dilly every once in a while.

I must congratulate you on the fanzine reviews. It is the finest I have read in many a moon. I hope that you will keep it up, as it will introduce many of your readers to organized fandom.

Before I close may I pray for one small favor?

WHY CAN'T WE HAVE A BLUE SKY ON THE COVER JUST FOR ONCE??????

Oh yeah, TEV sounded pretty good for a change, adult that is!!—*139-29 34th Road, Flushing, New York.*

Well, you get your Kuttner in the very next issue, novel and all, Alvin. And there won't be any more Cap Futures for a while at any rate. And the Sarge is not dead against ratings . . . he merely has a very live hatred for those odious items called comparisons. In short, your peeves are answered—save for the blue skies on the covers. Better see the motion picture of the same name and forget about wishing for the moo—I mean, for blue skies on SS covers.

Don't ask us why, ask the art editor!

IRONY IN OUR SOUL
by Patti J. Bowling

Dear Sarge: Just finished the Fall Issue of SS and am writing this in answer to your invitation at the end of TEV. Frankly, I believe this is the worst issue of SS I've read, and there wasn't a decent illustration in the magazine. The only really good thing was TEV. Incidentally, I noticed where Texas writers predominated. What could this be a sign of, I wonder?

The three short stories weren't too bad, but they certainly weren't good. They had their points and AFRAID had excellent characterizations. As for the Captain Future novel, phooey! ". . . his ironical eyes were green and ironical." I quote this as an illustration of one of the many, many inanities to be found in the story. The actual plot of the story is much too hazy and the information contained in THE WORLDS OF TOMORROW should have been put into the story. The only things in the whole story I liked were Oog and his antics.

I'll be waiting for the next issue and please, Sarge, have some decent, adult stories in it.—*137 Eads Avenue, San Antonio, Texas.*

Well, they pull no punch in Texas
No matter what their sex is . . . .

No other comment, Patti, save for a plaintive "ouch!"

'E REX US
by Rex E. Ward

Gentlemen: On to the Fall issue:

I am now efficaciously certain of one thing; namely, that Earle Bergey *is* showing *definite* improvement. After painting an excellent cover for the Fall *Thrilling Wonder Stories*, he comes along with an equally beautiful cover for *Startling*.

"The Solar Invasion," by Manly Wade Wellman. By virtue of being a Cap Future novel, it takes first place with an 8.5. Manly is no Hamilton by *any* means, but he *can* write—and good! Incidentally, I'm very glad to see my old friend Ul Quorn, back again.

"After Armageddon," by Francis Flagg. 8.2. Excellent—so excellent in fact, that it almost beat CF out of first place. I remember when it was originally published.

"Absalom," by Henry Kuttner. 6.0. Not up to Hank's usual standard, very well written, though—and worthy of the score it took.

"Afraid," by V. E. Thiessen. To me it didn't click. 3.5.

The illustrations were all fair, but *could* be better. A few suggestions:

Get Paul on the cover. Get Finlay on the cover. Trim the edges. Put some novels in the Hall of Fame, in serial form. More stories by Edmond Hamilton (glad to see him coming up), Stanton A. Coblentz, Manly Wade Wellman, Henry Kuttner, Murray Leinster, Polton Cross, and if possible, Eando Binder.—*El Segundo, California.*

Well, the Sarge needed that after Patti bowled her ten-strike. We'll see what we can do to fulfill your wishes (probably nothing, Rex), though why anyone wants to revive such an archaic cover designer as Paul escapes us. Wellman, Kuttner and Leinster are contributing regularly, of course.

CONTUSIONS ON CLASSICISTS!
by Benson Perry

Dear Sarge: *Startling Stories* received as usual. The

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cover is the worst since the Summer issue of 1944 and even this must be considered a draw. While we are throwing around superlatives, I'll say that it is the worst I've ever seen drawn Earle Bergey.

And there is little to argue about in the fiction in *Startling*. Most of us will agree that the "Solar Invasion" thing was not only a very poor story, it was even bad for Captain Future. And to think that MWW wrote this. . . . !

Flagg and Kurtner alone were readable.

And so, we come to the fanzine review. Tell me Sarge, how many people have given you the horse-laugh on the *Black Flames* review? Did anybody remind you that the magazine was named after the lead character in the "Black Flame" which was the first novel ever printed by *Startling*? Probably the greatest too. At least it usually rates high in the fan polls.

Thanks for the A review of CYGNI. I'll readily grant that the cover was very poor. In fact, I drew it myself (*which guarantees the matter*). The peculiar thing about the matter is that (in general) the articles you liked, I considered filler material and what you called "fifth-rate" generally was the best liked. It's a bit confusing. Wonder what you'll think of the latest issue.

AMUSING STORIES comes next. Here you pulled two serious boners. The first is that AS costs nothing but a kind request since it was designed as a supplement to CYGNI. Anybody who wants a copy, can obtain them as long as they last by writing me.

Secondly, AS did not print a plug for the "unmentional *Maxin*" magazine. I've done some pretty low things in my life, Sarge, but I never gave a plug for either that vile *Maxin* or its professional big brother. Gad.

The first post-Xeno issue shows a very good letter column is on the way. Somehow I recognized a definite editorial antagonism. Some of the curt remarks that you made to various suggestions and comments must have hurt. Or maybe I'm sensing something that isn't there. Take the reply to Oliver. The guy wrote what would have been an excellent letter (relatively) an issue ago and when he wrote it, it was in style. Why bite down on him so icily?

How about some of the fans starting a little discussion on the late H. G. Wells? What was his best stf yarn? His most prophetic?

I've read several but unfortunately the titles don't remain with me too well. As far's I am concerned the first and greatest time-travel story ever written is his "The Time Machine." "Men Like Gods" seemed quite wordy but I still consider it well worth reading. A very prophetic story—the title escapes me—written about the time of the Wright Brothers' original flight, describes a great world war complete with aerial machines and atomic power.

H. G. Wells probably deserves to be considered the first important writer of stf. Some may argue that others have preceded him; like those back in the days of Icarus and Dedaleus (optional spelling!) and so on up to the 19th century, but actually most of these were pure fantasy with no relation to science fiction. Jules Verne is a contender and he may have popularized the idea of moon 'rockets', etc. But for the most part, Verne was a very dull, dreary writer.—*68 Madbury, Durham, New Hampshire.*

So now the Sarge is crushed, along with Oliver's "ole Tungsten." But unlike certain hyper-sensitive fans, he can take it (he should—he gets paid for it). So what about BLACK FLAMES? We liked it, didn't we? And we refuse to be condemned to reading our own back issues. You fans can do that and welcome.

The Wells comment is interesting and, we hope, will promote a bit of fuss in these columns. The opus whose title you forgot was, the Sarge believes, A WORLD SET FREE. But you can have THE TIME MACHINE. Personally, we preferred THE SLEEPER WAKES, WAR OF THE

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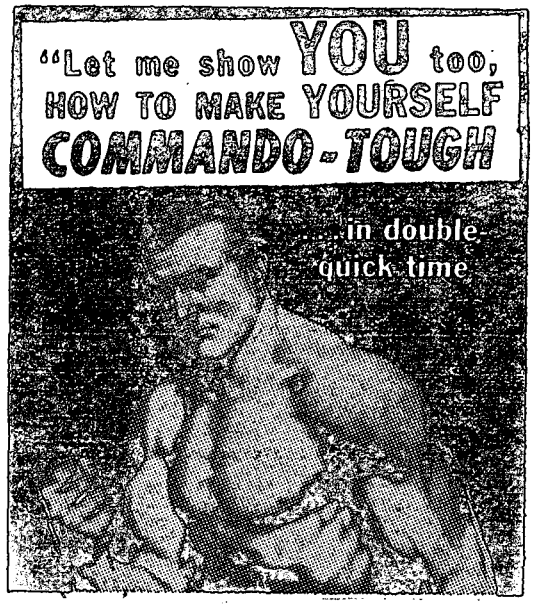

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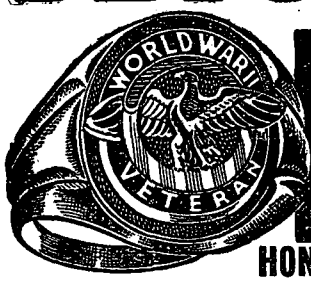

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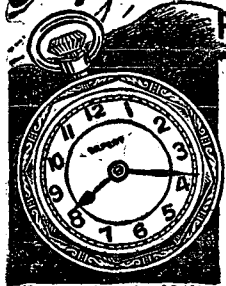

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WORLDS and FOOD OF THE GODS, along with A WORLD SET FREE. But there is plenty of good fodder for any imaginative reader in the early Wells pseudo-science opera.

DRAW THE SHADES!
by Don Hutchinson

Dear Sarge: Shades of Buck Rogers! Let me see now. Was it Joan Randall who was captured last, or was it Ezra Gurney? Will Grag manage to crawl out of the pit of acid, and did Otho actually walk into the invisible ray beam? Yes sir, another good old Cap Future opus has rolled along on its regular orbit.

There is a rumor going around that Murray Leinster has written two sequels for *The Disciplinary Circuit* that will appear in TWS soon. Is that right?

Your two magazines are, in my opinion, really tops in science-fiction owing to the excellent special features and departments, such as, "The Ether Vibrates," "Meet the Author," "The Story Behind the Story" and the review of fanzines. I think your mags could be improved even more by adding another department in each, such as a science-fiction quiz, or maybe even by reviving the Science-Fiction League.—*7 Tacoma Avenue, Toronto, 5, Ontario, Canada.*

Yes, Leinster has done the sequels mentioned and one of them, THE MANLESS WORLDS, is appearing in the current issue of TWS. We are working on another department now—or rather another regular feature—but wish to be sure its quality will be outstanding. Oke?

PLUCKED BY THE DOWNEY ONE
by John Van Couvering

Dear Sarge: Re: the Fall ish of *Startling Stores*, 1946. Viz.: although you made many lurid promises about Manly Wade Wellman's ability to do CF up brown, I still find that his treatment of the rather dubious excellency of Curt Newton leaves much to be desired.

As for the shorts—just shorts. "After Armageddon" was a flop. Atomic war; great holocaust, almost everyone killed; unknown secretary, bookkeeper, butler, or what-have-you takes over; raises remnants to new heights. Phooey. "Absalom—" the same, only more so. Kuttner can do better than that.

"Afraid" is the only one worth the paper it's printed on. Although it's an old, old, plot, it's hard to recognize it 'neath the masterful treatment Theissen (whoever he is) gives it. Dunno why, but I like it.

As for The Ether Vibrates—I would like to nominate Chad Oliver's gem for first place (I'm still laughing), . . . in fact, I think I will, although it may go against your new and progressive policy. You may make TWS and SS into respectable (STFictionally, that is) mags . . . if you keep it up. Second place will go to Ron Anger, mainly because he states my views on the Spring ish to a T. Third place I bestow on Kruger, Jewett, and Berry. Let them fight it out.—*902 North Downey Avenue, Downey, California.*

Another tear for Ole Tungsten, eh? You have a right to your own views on the stories. But why do you capitalize the V in Van in your name? It ain't right.

GOODNESS FROM GABRIEL
by Howard Gabriel

Dear Sarge: I was very much surprised to see the cover on the cover of the Fall ish. It was good. The short stories took top billing over the novel this ish. ABSALOM was the best. AFRAID came next, closely followed by the novel. AFTER ARMAGEDDON, tho' last, was a very good story. The Captain Future was

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excellent in parts and hacky in others.

As I read all the letters I purposely looked to see if anyone panned DEAD PLANET because I liked it so much and wanted to argue with someone who didn't.

The REVIEW OF FAN PUBLICATIONS is a very interesting department. So was the WORLDS OF TOMORROW.—*1450 East 19 Street, Brooklyn 30, New York.*

Short and, on the whole, very sweet, Howard.

USING THE OLD DEAN
by Walter B. Dean

Dear Editor: You wouldn't know it, but I am a prolific letter-hack of "ethergrams" to TWS and STARTLING—letters that never get posted. The reason is that I feel the urge to write only when I become enthusiastic over some story or other.

Today I'm going to try to write a whole letter about stories and stuff I don't like. You've been sporting enough to present me with a supreme subject for such an epistolary tirade—namely, the Fall STARTLING.

First of all, I'll attack that almost taboo subject—the artwork and Mr. Bergey. Matter of fact, while I favor the casting out of most of our illustrators, I believe the much-maligned Earle should be retained. He is a highly competent colorist, and his style has a certain dignity that is virtually unmatched in the stf-cover field today.

But STARTLING's covers are not scientifictional. "The current type of covers *sells magazines!*" you retort. Faugh!

Now, to the stories.

First, of course, "The Solar Invasion." The return of Captain Future and the space-opera, and consequently a jarring blow to STARTLING's recent trend toward scientifantasy, as brilliantly exemplified by "Valley of the Flame" and "The Dark World." This issue, Curt Newton. Next issue, a Hamilton epic "The Star of Life." Will STARTLING recover?

On the other hand, the shorts: "Afraid" is in first place, another example of superior craftsmanship, embodying nostalgic prose and a truly fantastic setting, which are usually employed only on "mood stories." The ubiquitous Mr. Kuttner is present, as usual, and "Absalom" is one of his best short efforts.

"After Armageddon," the HoF reprint, was typical of its kind, and saved from mediocrity by the quality of the writing. Excellent!

I was afraid I'd start praising. Too much of this will defeat the purpose of this letter.—*2215 Benjamin Street N. E., Minneapolis 13, Minnesota.*

Okay, consider yourself defeated, Walter. And SS should really have recovered with Kuttner's LANDS OF THE EARTHQUAKE next issue. Bear with us, please.

BLISS FOR BERGEY
by Bill Weeks

Dear Editor: Well, well. Bergey has finally painted a fairly good cover. Capt. Future is well drawn, and Joan would be O.K. but for the fact that her fingernails are polished and her hair is in perfect shape. Now answer me truthfully, Sarge, do you think it likely for a girl to go tearing thru jungles and the other idiotic things which Joan does without even losing her nail-polish or mussing her hair? Aside from that and the yellow background, the cover was O.K.

The two stories which I thought best were, *ABSALOM* and *AFRAID*. The Capt. Future yarn was its usual nauseating self, but I would still rate it above your so-called "classic." By the way, who chooses the stories to be reprinted in the "Hall of Fame"?

The inside pics were no good, but since you won't ever drop your punk illustrators, there's no use griping about it.

This month's Feature Flash was one of the best ever published in your zine.

The Viz was O.K. with OLIVER, KREUGER, and

[*Turn page*]

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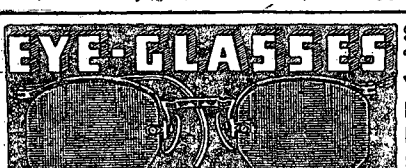

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JEWETT as the highlights this time.—*1800 Maxwell Avenue, Parkersburg, West Virginia.*

We shall have to get up a feature on cosmetics of the future to explain Joan's super grooming. Meanwhile, *pax vobiscum.*

OH, DEAR
by Walter A. Coslet

Dear Sarge: Some comments on the Fall *Startling:* It would seem that you are becoming less particular about Captain Future. Another thing noticeable is the extreme scarcity of the usual "Future" slang and the addition of slang more normal to our day (although this may be due to the editorial trend which has done away with mutant frog, toad and horned-toad companions of the Sarge). In spite of the fact that there are apparently quite a number of your readers who do not rate Captain Future very high, I add my vote to the side favoring him regardless of the tendency toward "space-opera."

AFTER ARMAGEDDON certainly exhibits the calm dignity of the old Wonder Stories in contrast to the type of material "normal" today! It would seem, though, that Flagg slipped up in not using atomic bombs.

Thiessen's AFRAID is a nice little psychological vignette, though it should have been a clear give-away to Kane when he looked at his foot and saw it all pulped and bloody, and yet the air did not escape from his space suit. As for the illustration, many a fan artist could do better.

No comment on WORLDS OF TOMORROW, except I wish you'd use Schomburg more often.

In ABSALOM we have another case where Kuttner sacrifices quality for quantity and yet manages to produce a better than average story. And talk about action-packed pictures!

You're doing right well in your editorial departments—at present you're definitely the best in the field thanks to your reformation. Congrats on your fnz column—it's really on the ball with its reviews, and the report on the efforts of yesteryear was very welcome—here's hoping for more of the same.—*Box 6, Helena, Montana.*

Thanks, Walter. As for Schomburg, we agree his artistic ability is high.

SING A SONG OF SINGER
by Ben Singer

Dear Editor: I have to say now what has been said a countless number of times before—that "I'm a new fan and this is the first time I've written a prozine."

But now to get on with business—that of rating the stories of your fall issue of STARTLING. Your best story in my opinion was "Afraid." "The Solar Invasion" was good—though pure space-opera. To tell the truth I like "space-opera." I dislike fantasy generally though not always. "The Dark World" seemed to me like a complicated fairy tale with its witchcraft and such. The other stories in the Fall issue were not good enough to mention.

Speaking of "mention" I don't think I ought to mention the fact that I am publishing a new fanzine called "The Mutant." It's to have from Ten to Twelve pages and features articles by Joe Kennedy, Rick Sneary, W. A. Coslet (Just wac for short), Gerry Williams and others. No—I don't think I ought to mention the fact.

Say-y-y are there any of you fans that would care to correspond with me? I'm willing and waiting.—*c/o Holzman, 4005 Webb, Detroit 4, Michigan.*

We take care of you and your MUTANT in very fancy style in the fanzine review column, Ben.

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WICHITANIA
by Edwin Sigler

Dear Sir: Congratulations on deciding to go on the water wagon. The magazine smells better as a result. The stories were pretty fair but why don't the artists read the stories they illustrate.

Captain Future's girl friend is supposed to be a pretty decent girl and in the story was dressed in jacket and slacks. Yet the artist insists on picturing her as if she were *a cheap dance hall girl.*

The moon story was unusual as it was the first time a hero ever admitted being scared. You know and I know that there are more people that are scared than they will admit.

The classic wasn't so bad but I dispute the contention that a war could bring barbarism upon the world. The ancient barbarians destroyed the Roman Empire but civilization still flourished in the east and there was an eventual rebirth of it in the west. However the mass of people of that day were uneducated and lacked knowledge. Nowadays men have spread knowledge so far that it couldn't possibly be blotted out.—*1328 N. Market, Wichita 5, Kansas.*

You're almost as much of an optimist about so-called civilization as you are about dance hall girls. Who and whatever gave you the idea dance hall girls are cheap? The Sarge, from his few salad-days outings in their purlieus, knows better. In almost any dance hall a visitor can go through more money, faster and to less avail than in anything but a slot-machine den. There isn't even a jackpot, Eddy!

SAYS THE SERGEANT—TO THE SARGE
by Ex-Sergeant Ann Gjelhaug, WAC

Dear Sgt. Saturn: From "Outlaws of the Moon" in the Spring 1942, issue of *Captain Future* (Page 29, second column): ". . . The hurtling telautomaton reached its goal. The iridium vase it clutched struck President Carthew with shattering impact. Carthew collapsed without a groan. . . . Appalled, Curt Newton looked down at the pallid features. It was the oldest friend of the Futuremen who lay dead here."

From the Fall 1946 *Startling Stories*, Page 19 of the novel "The Solar Invasion," featuring Captain Future: "James Carthew was gray-haired, distinguished-looking. . . . In two of the interplanetary wars he'd been a daring officer of fighting men. Now, at the height of his career and powers, he was the beloved president of all habitable worlds within the space-latitudes dominated by Old Sol. He looked up from his desk as the group entered. . . ."

Perhaps I've misjudged and underestimated Captain Future. He is the greatest scientist of the Universe—that I know. But I didn't realize till now that even he could bring dead men back to life!

Of course, I've missed most of the Newton novels since "Outlaws of the Moon," having spent the last three years in the WAC overseas, so perhaps "James Carthew" reappeared earlier in the series. Still, in any case, I think it was a wonderful miracle that Captain Future was able to reanimate him.

Outside of the appearance of "President Carthew," the story was very good. Others may disagree, but I think it was as fine as many of Edmond Hamilton's tales about the Futuremen. Surely, it matched "The Lost World of Time" and "Quest Beyond the Stars" for excellence. I never read any of Brett Sterling's Captain Future stories.

"Absalom" by Kuttner, and "Afraid" by V. E. Thiessen were both oke, but very insignificant compared with the Future novel. Francis Flagg's Hall of

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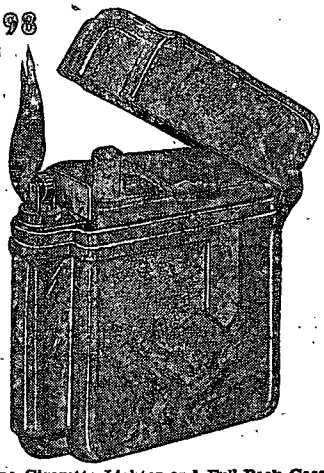

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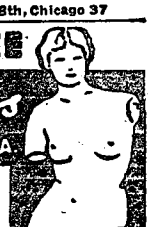

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Fame reprint was scrumptious!

TEV was rather dull this time. Let's have Ye Sarge's space lingo back! Chad Oliver and Tom Jewett wrote the best "Ethergrams." I tried to follow the latter's "advice to letter-hacks" in writing this letter.—*4031 Byers Avenue, St. Louis Park, Minnesota.*

So we're dull, eh? Sink us! As for the Carthewerratum, let's just say you underestimated Captain Future, or at any rate his current creator, Manly Wade Wellman, and leave it at that. Methinks you caught us where the hair is short.

BB SHOT
by B. B. Norton

Greetings, Sarge:
And howdeedo.
Norton wishes
Speech with you!

Leave us come to the point. The Cap Future novel in the Fall issue was awful!

Sarge, how could you? When I turn to the novel the first thing I notice is another author. That makes three who write about Cap Future. Next, I catch the corny style of writing that takes one back to the old "Dauntless Daskovitch" series books.

Though I tried—strictly out of loyalty to SS and fandom in general—I simply can not stomach it. I get to page 56 and then I burn the mag.

The novel ruins the best issue in a long time of SS. No kidding, Sarge, how is fandom to attract more fen to the fold as it were if such stuff is allowed to parade under the title of science-fiction?—*161 6th Avenue West, Seaside, Oregon.*

Well, thanks for trying. But there have been more than three, or where have you been?

ALTERED EGO
by Garvin Berry

Dear Sarge: Fall SS had surprisingly numerous attractions in addition to the delightful absence of your dipsomaniacal alter ego. ABSALOM of course was first. Kuttner in various pseudonymic incarnations has had more to say and has said it more entertainingly than any other current stf writer. This yarn chiefly noteworthy for interesting Biblical parallel and VERY neat ending.

AFRAID rather nice although had several implausibilities. Doubt very much the presence of uranium on surface of the lightweight moon. Strained ending, what?

AFTER ARMAGEDDON is, I tritely proclaim the obvious, more apropos and powerful now than it was in Sept. '32. I welcome the coming policy (I HOPE it's a policy) of longer reprints, since the novels have become waste paper. Or worse.

Casual scanning only for SOLAR INVASION. Hero that I am, I invite destruction by denouncing Capt. Tom Swift Future. This constant harping upon already overplayed theme is rapidly becoming a menace to all who dislike banal repetition.

Pix bad as usual when Whoozis (Lawrence-Stevens) and Finlay not around. BERGEY STILL BLOTCHES (I'm a Bergey-Buster, remember) but hesitatingly admit that the feminine physiognomy on cover is most unusual face Earle ever did. Attractive, no less.

In TEV, this dilute version of Sarge is better than whiplash creature in current TWS. Why extremes, Sarge? Oliver and Joke not deserving of editorial scorn; always interesting and amusing—they were tediously copied by less original morons. Two-edged. Incidentally because of 4 month lag in publication of maize-missives, Chaddo has been worryin' all over South Texas. Ashamed, Sarge?

Curt inquiry: why did mag pages suddenly turn green beginning with one upon which my letter appeared? Significance? Interested and puzzled to see more'n half letters from Texas. Chaddo's only one I've uncovered in last decade. Cause, he's enuf to stop further search — for various ambiguous reasons. Your paragraph re artistic inadequacy to present fan-

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tasy was far too true. Do not think it applies to majority of stf yarns though.—*5416 Ave. R, Galveston, Texas.*

We wondered about the green pygidium on the fall issue ourselves. However, it is *not* radioactive or otherwise poisonous. Probably it was caused by use of green wood pulp. Slash that pine!

BLEAT FROM ST. PETE
by Lin Carter

Dear Sarge: "The Solar Invasion" by Wellman wasn't so hot as a Capt. Future yarn. Since when is Otho able to shrink and expand his body? However, "After Armageddon" and "Afraid" more than made up for the lousy parts in the novel.

"After Armageddon" truly deserved its title of "classic." It sounded much like those "horrors of Atomic War" we hear so much about these days.

"Afraid" was very much like old time stf—which we have altogether too less of. "Absalom" wasn't so good tho . . . tut, Sarge. In fact, several tuts—a Kuttner yarn, too. . . .

And that cover, too—WOW! Maria Montez, crawling out of a pool of lemonade, and being threatened by a circular pincushion! Ugh. By the way, where did you get the (um) model for the lush heroin . . . heroine . . . heir . . . skoit?

Well, well, an Ed Hamilton yarn next ish. . . . *Au revoir* (as they say in French) till then. Sarge.—*865 20th Ave. S., St. Petersburg 6, Florida.*

That wasn't lemonade—it was melted butter.

CHEERS FOR "INVASION"
by Wallace Weber

Dear Sarge: I have just gotten my typewriter which sabotages my last excuse as to why my letters aren't published. (I refuse to recognize the fact that they just aren't good enough.) Oh well, here I go again.

After looking over the Fall issue of you-know-what, I have come to the conclusion that it will do no good to ask for a space-ship on the cover. Worse yet, I am almost beginning to like the pictures on the covers. Speaking of pictures, how about having a Hall of Fame picture classic each issue along with the story? (I didn't think so either.)

In my worthless opinion, "The Solar Invasion" is one of the best Captain Future yarns I have read. . . . But then, I haven't read many of them. I sort of missed the Futuremen department that used to come with the stories. Speaking of Captain Future, (Here I go again) why not start his own magazine again, only have a different author each issue?

I had better shut up before I get any more ideas.—*Box 858, Ritzville, Washington.*

It's all right, Wallace. As to your H of F pictures, you tell us where to find 'em and we'll run 'em. In spite of the banzais of many fans, archaic STF artwork was of a pretty primitive sort—perhaps unpretty primitive would be more descriptive. Glad you liked the Cap anyway—glad somebody did.

PHOBIC TOWARD BERGEYPHOBES
by Lloyd N. Cheney

Dear Sarge: I have just finished the latest fall issue of STARTLING STORIES and I think it is really on the ball.

I don't claim to be a science critic, (as some of your other readers) but I do think that your Captain Future novel is tops and Thiessen's "Afraid," although a short, runs a close second, because it was different from the

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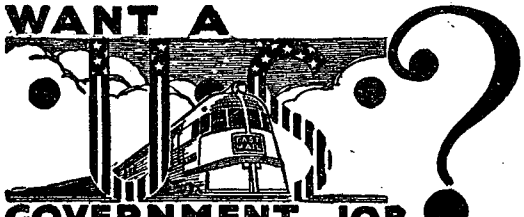

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Now I am going to start a few atoms smashing verbally, but not at your Mag. Surprised? Every time I read Ethergrams I burn up. All you ever hear is unpleasant remarks about Bergey's cover pictures. Would some of these so-called art critics do me a favor and please do a few drawings for the public's view and inspection? I doubt very much if they can. If not, will they please remain silent till they can do better. I can not see someone whose jealousy of artists leads them astray.

Well, Sarge, I guess I had better close as I will probably be burning when I read the so-called critics' reply as it is.—*730 St. Johns Ave., Lima, Ohio.*

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TEN-YEAR FAN
by Dennis Lethbridge

Dear Sarge: This is the first time in the ten years of reading science fiction that I have taken time to write to an editor. The occasion . . . no more of that drivel you were torturing us with. As a result I can read your column without breaking out in a cold sweat. Let's keep it that way.

This Kennedy guy seems to have been around a long time. I wonder if he's the same Kennedy as the one who used to be a regular contributor to mags back around 1938 or 1940.

Ah yes, those were the days when the greatest of all writers was turning out his masterpieces. Of course I mean the great E. E. Smith, Ph. D. I wonder how

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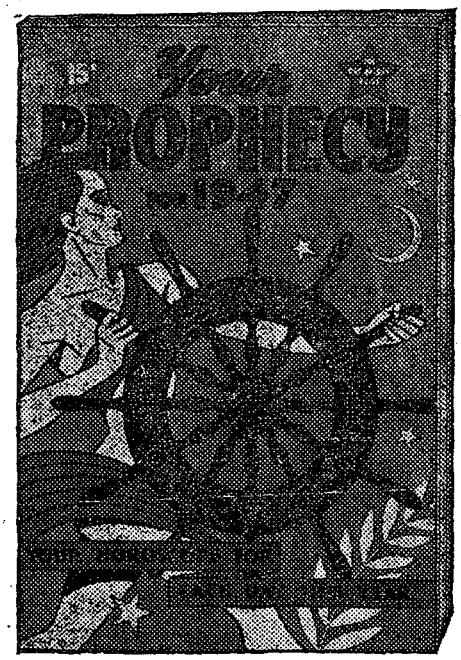

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many other writers have the knowledge of science that Smith had. A suggestion . . . how about one of his stories for your Hall of Fame. I was thinking of the "Gray Lensman" in particular but that would be too long. However anything of his is good enough to rate H of F classification.

Getting back to SS. Why do you have to spoil an up-and-coming mag by including those corny Captain Future stories. It's not that the plot isn't good, it's the characterization. Wellman has sunk to a new low in his latest. Some people aren't going to like that but it's my honest opinion that a five-year-old child could do better.

That's all for this time. If you keep CF out of SS you have a regular buyer. TWS is okay for my money, too.—*476 Simcoe Street, Winnipeg, Manitoba, Canada.*

Send us a five-year-old child who can do better and we'll sign him or her up pronto, Dennis.

VOICE FROM THE DEEP
by Arthur T. Mareth, MOMM 2/C

Hi Sarge: I've been a steady reader of S.F. for the last ten or fifteen years and I don't think I have ever had a beef or a gripe. Now I have though.

The gripe is for the guys who are always telling the world how bad the stories are. Seems that those guys are free to read and comment all they want, but it also seems that they could find something good to say once in a while to offset the monotony a little.

For the last four years or so I have been in the U. S. Navy, and attached to the Submarine Force. Sometimes I have found it very difficult to find ANY S.F. to read. And believe me Sarge I appreciate all those "bad covers," "poor stories," and "lousy illustrations," much less beef about the "untrimmed edges."

The fall issue of S.S. was superb as far as this reader is concerned. I always went for the "Captain Future" and still do for that matter. I will try and put the stories down as I saw them. The old business of a jug of Xeno for this, a short beer for that I don't know much about so I'll give them the old stand-by of Stars.

1. "The Solar Invasion".....4 Stars.

As all "Captain Future" novels, good from the start to the finish. This is the first "C.F." novel I have seen since before the war. 'Tain't my fault, Sarge, couldn't get a hold of many mags. I have always liked Wellman, but tell me Sarge, didn't Hamilton write "C.F." or am I thinking of something else?

2. "Afraid" .....3 Stars.

This was a good one too. I especially liked the slightly different plot, I wish it could have been a few pages longer, as it was I was just getting interested in it and it came to an abrupt stop.

3. "Absalom" .....2 Stars.

I was slightly disappointed with this story. I did like it but I have also read a lot of better material from the pen of Kuttner.

4. "After Armageddon".....1 Star.

This one was a little slow, and an old plot at that, if I sound like I'm griping, I don't mean to. But the story reminded me of one I read a few years back.

As for the other articles.

"Ether Vibrates".....Good
"Worlds of Tomorrow".....Good
"Meet the Author".....Good
"Review of Fan Pub".....Good

The cover by Bergey was worth framing. Some of the wolfs who always want gals on the cover should be well satisfied.

All in all I think the ole mag is well up to par, and I hope it stays that way.—*U. S. S. Redfin. SS 272, Sub Base, New London, Conn.*

Okay, Arthur, and it is very comforting to the Sarge to know that SS can be and is read under water.

Well, that's it, this trip. See you all again next time out!

—SERGEANT SATURN.

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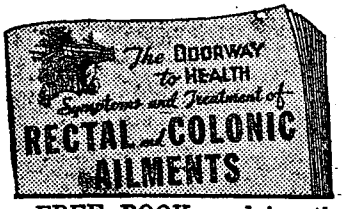

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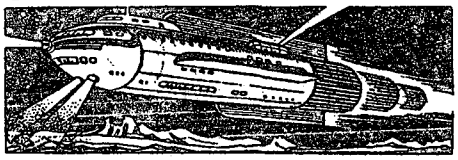
REVIEW OF THE SCIENCE FICTION FAN PUBLICATIONS

By SERGEANT SATURN

A LOT of special stuff seems to have come rolling in since the last time the Sarge took a look at his review material. So, before we roll up our sleeves, sharpen our surgical knives and get down to the real business at hand—namely dissection of STF fanzines—let's clear them from the agenda.

The Hadley Publishing Company's successful publication of THE TIME STREAM and



SKYLARK OF SPACE seems to have set off some sort of a chain reaction in its field. Now an outfit called Trover Hall, of 2126 Grove Street, San Francisco 17, California, steps forward with an announcement claiming to be first in the field.

As a starter, they announce printing of an edition of PUZZLE BOX by one Anthony More, and for a list of things to come, five more Mores. A little enlightenment as to the identity of the author who seems to comprise their entire list would now seem to be *en règle*.

Furthermore, a San Jose outfit calling itself Cheney's Book Service announces that it is peddling Stanton Coblentz's WHEN THE BIRDS FLY SOUTH at sub-retail rates. Books, it would seem, are fast becoming the order of the day around here.

Otherwise the fanzine special-stuff picture is remarkable for a great burst of energy by Forrest J. Ackerman. Not only has he come up with a monumental bibliography for THE FANTASY FOUNDATION, 1945 edition, but, under the somewhat pretentious title of I BEQUEATH, has listed his even more monumental library in a testament to the same Los Angeles group.

Which is only the start. A neat one-page arrangement lists the works of the late Francis Flagg and, in collaboration with Arthur Louis Joquel II, the Ack has spawned an elaborate memoriam to H. G. Wells, listing all of his published works as well as obituary articles and a somewhat turgid elegy by Tigrina.

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Somebody must have slipped him a pil.

To get out of Los Angeles briefly, here is a letter from Walter H. Gillings, of 15 Shere Road, Ilford, Essex, England, who is deeply concerned with the postwar revival of British fandom. Says Mr. Gillings:

The development of the fantasy field in Great Britain, after its curtailment by the war, is now being resumed in earnest by both British and American publishers. Several new projects designed to cater to the science and weird fiction reader have already been launched, or will be as soon as conditions allow; and there is every prospect of a great revival of interest in the field over here.

Already the lack of some medium whereby isolated and potential readers may be kept informed of all new developments and current publications, and have their interest sustained, has made itself felt. I am therefore proposing to publish, at quarterly intervals, a news magazine and review which will fulfill this need and foster the further growth of fantasy by co-ordinating all the ramifications of the field on both sides of the Atlantic.

You may remember my *Scientifiction*, the British Fantasy Review, which did similar service in 1937-38 and led to the appearance of "Tales of Wonder" and "Fantasy." The proposed new journal would be produced on much the same lines, but with a wider scope, to embrace the whole field of science and weird fiction and their allied activities. It would pay particular attention to new issues of magazines and books appealing to the reader and collector of both types of fiction, and serve to enable him to secure such issues through channels with which he has lost touch during the war years, or has yet to discover.

Publishers and distributors will thus be afforded a valuable medium which will keep them in constant touch with an increasing number of readers genuinely interested in all they have to offer. It is intended that the magazine, provisionally entitled FANTASY REVIEW, shall circulate to a minimum of 1,000 subscribers (British and American) as from the first issue, planned for publication in October next. This circulation, though comparatively small, will undoubtedly increase as the journal's influence extends, and it is hoped that it will appear more frequently once it has become established.

It will not be the usual type of amateur fan magazine, but will endeavor to attain the highest possible standard of production and reader-interest. It will feature book and magazine reviews, interviews with fantasy writers and editors, and articles by experts covering every aspect of the field here and in the U.S.A. Incidentally, it would do much to renew and promote the friendly international contacts which have contributed so much to the progress of the field in the past.

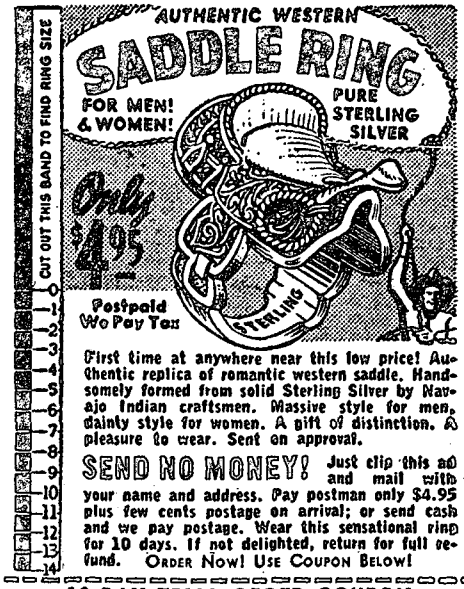
Obviously, this project, though assured of the support of all concerned in the redevelopment of the magazine medium on this side, must rely for much of its success on the goodwill of American publishers and editors, to whom we are indebted for their ready co-operation in former years. At least, we should be glad to receive from them regular advance details of their forthcoming issues and other items of interest to fantasy followers, for publication in our columns—until when they will, naturally, be treated with the strictest confidence.

The magazine will probably consist of 20pp., including six advertisement pages, three of which have already been booked for the first issue. Copy and payment are not required until we are preparing for press. On receiving your reaction to our proposals, we shall communicate with you further.

Subscription rates to FANTASY REVIEW will be 2s.0d. per year, or 6d. per single copy, post free; in U.S.A., 50c. per year, or 15c per single copy, post free. The subscription list will not be opened until September, when we shall be circulating an announcement concerning the magazine to some 2,000 potential subscribers.

Well, here's wishing Mr. Gillings luck and subscribers. And now to the fanzines themselves.

[*Turn page*]



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The list is spotty this time, with ACOLYTE and VOM missing, to name just two of the erstwhile regulars. In fact, only seven amateur efforts win an A rating, while fifteen wallow among the B's. Come, come, ladies and gentlemen, is this postwar progress?

Well, let's take a look at them and see.

CANADIAN FANDOM, 9 MacLennan Avenue, Toronto 5, Ontario. Editor, Beak Taylor. Published irregularly. 5c per copy or 6 copies 25c.

Moderately amusing copy (with the exception of the overlocalized and therefore unfunny saga of Mason's springtime in Montreal) is here marred by some of the least amusing and most poorly reproduced cartoon comics on fanzine record. Appeal to Canadian fans, which is, after all the mag's purpose, is high, however. The Sarge doesn't know why it isn't better than it is.

CYGNI, 68 Madbury Road, Durham, New Hampshire. Editor, Benson Perry. 10c per copy, 3 for 25c, 7 copies 50c. Published irregularly.

Well, Perry finally dug himself a cover and very neat it is too. It seems possible that he takes the Shaver hoax a trifle seriously, but his printing a statement by the Shaver in question makes for solid controversial stuff. Other copy, including Bart Jameson's autobiography, is up to snuff, but what was the point of Sneary's alleged cartoon on page 9?

FANTASY ADVERTISER, (Nos. 3 & 4), 628 South Bixel Street, Los Angeles 14, California. Editor, Gus Willmorth. Published irregularly. 5c per copy, 6 copies 25c.

Most competent guide book to fan and prozine sales and other swappable or purchaseable material extant. No fanzine publisher should be without one, as it does not confine itself to sales and auctions but gives invaluable typographical hints as well. Heartily endorsed.

ROCKETS, 469 Duane Street, Glen Ellyn, Illinois. Editor, R. L. Farnsworth. Published quarterly. $4.00 per year, 3 years $10.00.

Despite its newspaper format, this certainly has won its A rating with palms. Current issue follows familiar and interesting pattern, with the usual drawings and diagrams of space ships to come. Long articles pro and con atomic power for such vessels, by Robert Lee Morre and George A. Whittington respectively, make up a fine controversial letter page. Some of you may remember how the Sarge blasted the early issues of ROCKETS. He has had to do a lot of backtracking since.

SHANGRI L'AFFAIRES, 637½ South Bixel Street, Los Angeles 14, California. Editor, Charles Burbee. Published 7 times yearly. Price 10c per copy, 3 for 25c, 6 for 50c.

With Burbee back at a helm that is definitely not wieldy, SHANGRI L'AFFAIRES takes its 32nd issue to present a running account of the Pacificon, shunting all other effluvia to the rear of the mag. All in all it is reminiscent of that issue of the NYORKER containing John Hersey's hunk of Hiroshima. Brrrrr!

SUN SPOTS, 9 Bogert Place, Westwood, New Jersey. Editor, Gerry de la Ree. Published irregularly. Free to contributors.

Editor de la Ree tackles Farnsworth and his ROCKETS in the 38th issue of this poli-perennial and achieves that take-off feeling. He also contributes another vignette on Weinbaum which may or may not be a trifle pretentious. Sam Moskowitz has more of Weinbaumia, Joe Kenndy chews another bit of hard-to-replace cloth off the seat of the Sarge's breeches and Manly Wellman postscripts an erudite item on his Shonokin *amis*. All in all, one of the best fanzines the Sarge has yet seen.

VAMPIRE, 84 Baker Avenue, Dover, New Jersey. Editor, Joe Kennedy. Published irregularly. 10c per copy, 3 for 25c, 12 for $1.00.

Good issue of the Kennedy special, with Chidsey, de la Ree, Inman, Streiff and others doing their com-

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petent stuff. Howl of the issue is the issue Walter Harwood takes over Edmund Wilson's derogatory views of Lovecraft. He believes that Mr. Wilson's "endocrine glands have acquired their own peculiar balance from too many hours spent in a library. . . ." And after *Memoirs of Hecate County* . . . now really, Walter! Kennedy rates the howl of the month on that one. Go ahead and howl, Joe.

All mediocre things must end, it seems, so on to the B-list, which is more remarkable for quantity than quality. This, it seems, is not a notable era—but then, fanzines usually slump off toward the end of the year. Maybe they'll pick up again . . . maybe.

COSMIC NEWS-LETTER, 101-02 Northern Blvd., Corona, N. Y. Editor, James V. Taurasi. Published weekly. 5c per copy, 6 for 25c. A welcome development of the old-fashioned cardzine is this four-page brochure. Well packed with fan and pro information.

FANTASY PICTORIAL, 514 West Vienna Avenue, Milwaukee 12, Wis. Editor, Bob Stein. Price 3c. Some rather blotchily clever heckto-pix symbolic of something or other share with some shaggy-dog left wingisms the backsides of papers printed for a Badger Biological Supply Company, also of Milwaukee. Do tell!

FANEWS, 1443 Fourth Avenue South, Fargo, N. D. Editor, Walter Dunkelberger. Published irregularly. 2c per sheet, 55 sheets for $1.00. Up to snuff, that's enough. And, contrary to rumor widespread in fandom, Dunk didn't die. He wants this fact known for some reason. Swell stuff that needs only a binding to bound into the A list for keeps.

FANTASY TIMES, 101-02 Northern Blvd., Corona, N. Y. Editor, James V. Taurasi. Published weekly. 5c

[*Turn page*]

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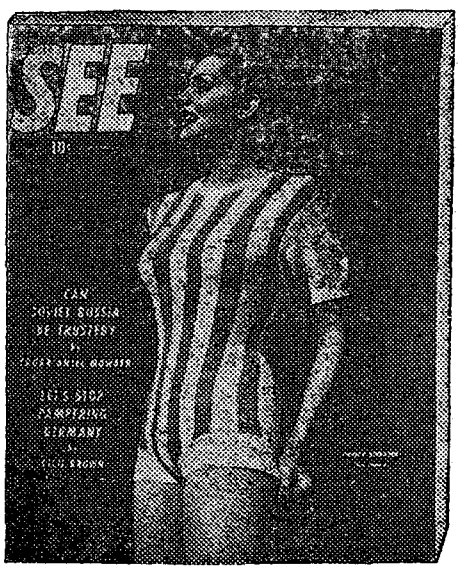

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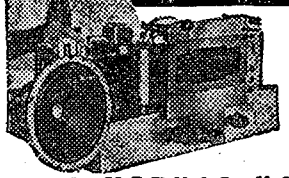

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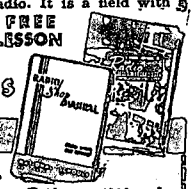

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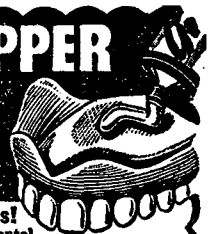

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per copy, 6 copies 25c. The fandoings that failed to make Taurasi's MARTIAN NEWS-LETTER here appear, along with briefs by well-known fans, et cet. Yes, the cardzine is unlikely to come back with these in the field. Oke.

GRIPES AND GROANS, 2962 Santa Ana Street, South Gate, Cal. Editor, John Cockroft. Published irregularly. 5c per copy. A chance for fans to sound off. With VOM moribund at the very least, this newcomer should have a place.

THE H OR FANATION (that's how it looks to us. SS.), 1001 West Gilbert, Muncie, Ind. Editor, William Deutsch. Published irregularly. 1½c in stamps. Whatever this is, it's illegible.

KAY-MAR TRADER (Nos. 5 & 7), 1028 3rd Avenue South, Moorhead, Minn. Editor, K. Martin Carlson. Published irregularly. Price unlisted. Swap list material, as such valuable to fans.

LUNACY, 1115 San Anselmo Avenue, San Anselmo, Cal. Editor, Jawge Caldwell. Published (?) irregularly. 5c per copy, 6 for 25c. If this weren't so pweshus cute, it might turn into a good general-interest fanzine. As it is—words fail!

MARTIAN NEWS LETTER, 548 North Dellrose, Wichita 6, Kansas. Editor, Telis Streiff. Published irregularly. 10c per copy, 6 for 50c. Modest little job in a coat of many colors that seems pre-occupied with the thought of the next war. But who isn't?

MERCURY, 548 North Dellrose, Wichita 6, Kansas. Editor, Telis Streiff. Published irregularly. 3c per sheet, six sheets 10c. Another fanzine bursting out of its diapers.

MUTANT, 4005 Webb, Detroit 4, Mich. Editor, Ben Singer. Published bi-monthly. Price unlisted. Kennedy, Kadet, R. Evans and Tigrina combine with the editor to make this a promising neophyte (once printing, cover etc. are passable). But Ollie Vane's "Planetary Mutations" and A. Budrys' cover design (or lack of same) will keep it on the B list indefinitely if they are repeated.

PSFS NEWS, 3507 North Suydenham Street, Philadelphia 40, Penn. Editor, Oswald Train. Published monthly. 10c per copy, 6 copies 50c, 12 copies $1.00. The dignified little "Gazette of Philadelphia Fandom" is already beginning to loosen its editorial stays toward the Philcon next summer. Fans who want to keep up to date on convention activity should buy it.

SLANTASY, Dorothy, N. J. Editor, A. Budrys. Published irregularly. 2c per copy. Budrys is working hard with this one, but is stymied by his own horrendous and (praise Allah!) inimitable artwork. Otherwise the material is not bad save for a murky ode by one James Korjus. It can stand a lot more work.

SPACELING, 119 Woodland Avenue, Coatesville, Pa. Editor, Howard G. Allen. Published irregularly. Free. Allen and his gang need a few more issues before they can be rated at all. As it is, they are in the illegible league with Deutsch.

TESTING, 1-2-3-4 68 Madbury Rd. Durham, N. H. Editor, Benson Perry. One-shot. Free. More about Shaver and the Sarge's going on the wagon. Oh, well....

Well, that's it, fellows. It's been better, it's been worse. So long until next issue.

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MURRAY LEINSTER is what might be called an "old science fiction hand." His ingenious inversions of accepted scientific theory and his imaginative contemplation of the possible results of such inversions (to say nothing of their causes) have enthralled readers of STF for more years than their author cares to consider in front of his mirror while shaving.

But the author is more than a mere juggler of formulae. He is the possessor of a first-rate creative sense of dramatic story values as well as of sharper and more whimsical insight into human behavior. And he knows how to write prose with the easy fluidity that comes only of long experience.

But so often has his biography been briefed in the departments of STF magazines that he is, in truth, beginning to feel a certain lurking ennui toward his own life story. In short, to him, Murray Leinster on Murray Leinster is very old hat.

Therefore he has, in the following paragraphs, given us a brief biography of his LAWS OF CHANCE and the motives that caused him to write it. And since the story deals with the universal urge to find a sure thing, it seems to us a highly interesting departure from the orthodox magazine thumbnail sketch.

Says the Leinster:

A long time ago I got cured of any inclination to gamble because I tried to use my head. I got technical and dug into the laws of chance, so—I thought—I could gamble intelligently. And ultimately I wrote LAWS OF CHANCE because they're the most irritating natural laws in all the cosmos. They ought to be set to work, but we can't do a thing with them.

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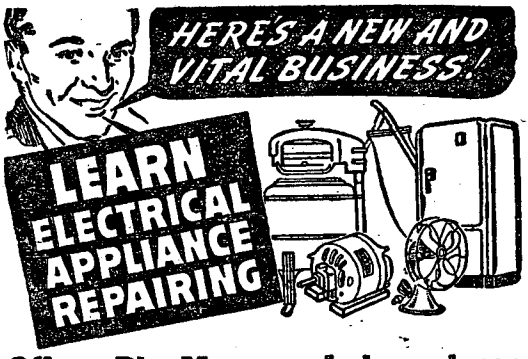

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another sucker. Did I hear you say "So what?"

So why don't we do something about it? All the other things we've learned have done us some good. We learned the laws of mechanics and chemistry and thermodynamics and electricity and we made a civilization. Then we learned some of the laws of nuclear physics and made atom bombs which seem likely to blow it all up again. But why are the laws of chance so useless?

They're exact, they're infallible and they're infuriating. If I mix some of this and some of that, I know I'll blow myself up. If I arrange wires and condensers and dinkuses this way and that, I know I can tune in radio programs and learn all about body odor and bleeding gums. If I climb up a steep snow-covered hill and put on skis I can slide all the way down to the bottom again.

I can use the laws of chemistry and electricity and gravity and all the rest. But the laws of chance tell me that if I toss a coin a thousand times, it will come heads just five hundred times, plus or minus half a dozen. They tell me nothing else. I can't use 'em. All I can do is prove 'em. So. . . .

If we can apply chemical laws to stop undesirable chemical actions—see galvanized iron and chromium plating—and electrical laws to stop electricity—see lightning-rods—and apply the laws of hydraulics to prevent floods and even use fire to fight fire—why can't we apply the laws of chance to hold off bad luck or bring about good? Dammit, we should! Why not?

So there you are. LAWS OF CHANCE is a picture of what we ought to be able to do, even if we can't do it at the moment. It's propaganda for a Science of Chance, by which we would use the forces which produce such predictable results, just as we use other forces whose results we can foresee. There should be a Science of Chance, just as there is a science of electricity or aerodynamics or nuclear physics. It's time we got started developing it. Has anybody any ideas?

Now if somebody could only apply such science to horses—and jockeys, *and* trainers AND the weather and track conditions which so frequently upset the best-laid advance dope—some of us might get somewhere. How about it, Murray?

Introducing Margaret St. Clair

It is not customary to enlarge upon the lives of the authors of short stories in this department (don't ask us why, but there it is). However, Margaret St. Clair, author of THE SOMA RACKS, is a brand-new author to the STF field and one whose work you will see frequently in future issues of this magazine.

Furthermore, she introduces a new, different and highly sophisticated note into what has all-too-often been a "Gee whiz!" and "Blast 'em with a ray-gun" chamber of modern fiction. Her subtle, oblique style with its deceptive appearance of simplicity moves along in a well-mannered fashion that approaches naivete until—whammy!—the hidden charge within it detonates.

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At this point, the reader is apt to grab the edge of his chair with both hands and hang on tightly. Not since the writing days of the late H. H. Munro (Saki) has anyone produced quite this effect.

But let's leave discussion of Margaret St. Clair to Margaret St. Clair. She speaks of herself as follows:

I've been reading science-fiction, off and on, since I was a very young sprout indeed, but the bunch of mss. I sent you was my first attempt at writing it. The immediate cause of my outburst was that I was smarting under too many rejections of my detective and other stories, and thought it would be a pleasant change to be rejected by a different bunch of people.

Then, when the first story proved to be so much fun to write, I went ahead with others. Certainly I had little hope of selling them. I should say that the reason why so few women write science-fiction is the one which restrained me hithertofore, i.e., a feeling that they cannot compete successfully in it.

About myself, I was born in Kansas, went to school there and in California and have a degree from the University of California. At one time after my marriage I propagated the carnations and other plants for our nursery and played foster mother to litter after litter of puppies, but at present I am doing little beside writing and my own low quality brand of housekeeping. I live on a hill across the bay from San Francisco with my husband and my two dachshunds, Ninel v. Wälsungen-Haus and Teckelheim Prinz Call Boy. They have fleas just like ordinary dogs though.

My husband, by the way, thought THE SOMA RACKS was very amusing. Some people can't seem to realize when a shoe fits. . . . Just at present I'm working on another mystery yarn, but when I've suffered through it to the end, I'll probably try some more science fiction slanted your way.

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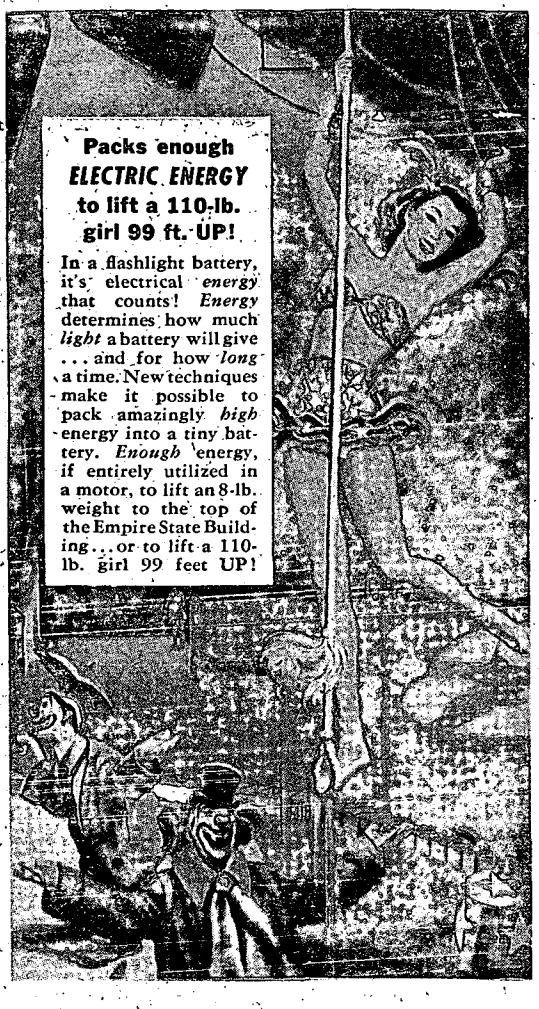
NEW FLASHLIGHT BATTERY LASTS 93% LONGER!


Packs enough ELECTRIC ENERGY to lift a 110-lb. girl 99 ft. UP!
In a flashlight battery, it's electrical *energy* that counts! *Energy* determines how much *light* a battery will give . . . and for how *long* a time. New techniques make it possible to pack amazingly *high* energy into a tiny battery. *Enough* energy, if entirely utilized in a motor, to lift an 8-lb. weight to the top of the Empire State Building . . . or to lift a 110-lb. girl 99 feet UP!

IT'S NEW! Revolutionary! For *sealed inside* this new battery is the electrical equivalent of over 10,890 foot-pounds of *energy*. Yes—the total energy in the *new* "Eveready" flashlight battery, if entirely used in an electric *motor*, would lift a 110-lb. girl 99 feet in the air!

That same energy means brighter *light* in your *flashlight*. And *93% longer life!* Yet the *new* "Eveready" battery still costs only 10¢.

NATIONAL CARBON COMPANY, INC.
30 EAST 42nd STREET, NEW YORK 17, N.Y.
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UCC

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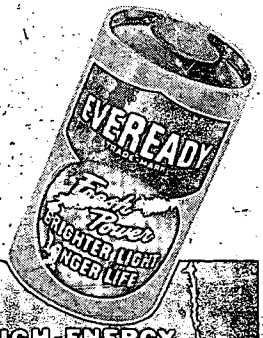

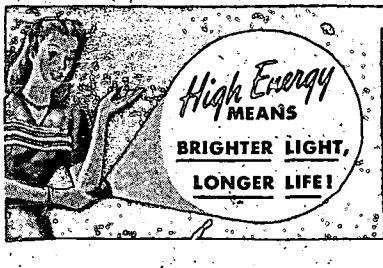

93% MORE ENERGY
Nearly *twice* the electric energy . . . almost *two times longer life* That's today's *high-energy* "Eveready" flashlight battery.

HIGH-ENERGY
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FLASHLIGHT BATTERIES

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